

Bulletin of the  
**ENTOMOLOGICAL SOCIETY  
OF AMERICA**

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**BULLETIN**  
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### SUSTAINING ASSOCIATES

This will serve to welcome the following new Sustaining Associate.

**FREEPORT SULPHUR COMPANY**  
P. O. Box 1520  
New Orleans 5, Louisiana

We are listing below our 1957 Sustaining Associates effective as of March 1. As will be noted this is the third year of Associateship for many of these companies. The interest of all the firms listed in the advancement of entomology is evident. We commend each to our membership.

Birds Eye Division, General Foods Corporation, 250 North Street, White Plains, New York. 1955-56-57.

California Spray-Chemical Corporation, Lucas & Ortho Way, Richmond, California. 1956-57

Carbide and Carbon Chemicals Co., 30 East 42nd Street, New York 17, N. Y. 1955-56-57

A. L. Castle, Inc., P. O. Box 308, Mountain View, California. 1957

Chemagro Corporation, 437 Fifth Avenue, New York 16, New York. 1955-56-57

Colloidal Products Corporation, 100 Gate Five Road, Sausalito, California. 1956-57

The Dow Chemical Company, Agricultural Chemicals Division, American Legion Building, Midland, Michigan. 1956-57

E. I. duPont de Nemours Co., Inc., Grasselli Chemicals Department, Wilmington 98, Delaware. 1955-56-57

Eastern States Farmers' Exchange, Inc., 26 Central Street, West Springfield, Massachusetts. 1956-57

Fairfield Chemical Division, Food Machinery and Chemical Corporation, 441 Lexington Avenue, New York 17, New York. 1956-57

Freeport Sulphur Company, P. O. Box 1520, New Orleans 5, Louisiana. 1957

The Gardening Council, Newark, New York. 1956-57

G. L. F. Soil Building Service, Division of Cooperative G. L. F. Exchange, Inc., Ithaca, New York. 1955-56-57

Gulf Oil Corporation, Gulf Building, Pittsburgh 30, Pennsylvania. 1955-56-57

Hercules Powder Company, Agricultural Chemicals Division, Naval Stores Department, Wilmington 90, Delaware. 1955-56-57

Jackson & Perkins Company, Newark, New York. 1955-56-57

Minerals & Chemicals Corp. of America, Menlo Park, New Jersey. 1956-57

Monsanto Chemical Company, 800 N. 12th Boulevard, St. Louis 1, Missouri. 1956-57

Niagara Chemical Division, Food Machinery & Chemical Corporation, 100 Niagara Street, Middleport, New York. 1955-56-57

S. B. Penick & Company, 50 Church Street, New York 8, New York. 1955-56-57

Pennsylvania Farm Bureau, Cooperative Association, 3609 Derry Street, Harrisburg, Pa. 1955-56-57

Port Fertilizer & Chemical Company, P. O. Box 337, Los Fresnos, Texas. 1956-56-57

R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina. 1956-57

Rohm & Haas Company, 222 W. Washington Square, Philadelphia 5, Pennsylvania. 1955-56-57

Shell Chemical Corporation, Agricultural Chemical Sales Division, 460 Park Avenue, New York 22, New York. 1955-56-57

Stauffer Chemical Company, 330 Madison Avenue, New York 17, New York. 1955-56-57

Thompson-Hayward Chemical Company, 2015 Southwest Boulevard, Kansas City 8, Missouri. 1955-57

The Triangle Company, 320 W. Market Street, Salinas, California. 1956-57

United Fruit Company, Research Department, 80 Federal Street, Boston 10, Massachusetts. 1955-56-57

Velsicol Chemical Corporation, 330 East Grand Avenue, Chicago 11, Illinois. 1955-56-57

Willson Products Division, Ray-O-Vac Company, Reading, Pennsylvania. 1956-57

Woolfolk Chemical Works, Ltd., E. Main Street, Fort Valley, Georgia. 1956-57

### AUTOGRAPH A O O

We have come another full turn of the wheel and the BULLETIN now begins Volume 3. Whither the days of our years? We hope that the membership will take due note of President Armitage's message. Past-President Porter's presidential address is also called to your attention.

CONSTITUTION. Each member of the Society has a copy of our Constitution. A *Special Committee on Revision of the Constitution*, H. H. Ross, B. B. Pepper, and H. M. Harris, *Chairman*, presented their report at the Fourth Annual Meeting in New York. The constitution as revised and presented is published in this issue of the BULLETIN. All members are asked to read this carefully since it will be given consideration at the Memphis meeting and subsequently the question of adopting the revised constitution will be submitted to the membership for mail ballot.

BRANCH BOUNDARIES. Members in Canada and Mexico will be interested in the extension of Branch boundaries as printed elsewhere in this issue under *Minutes of the Final Business Meeting at New York*. This changes the procedure adopted a year ago. It is hoped that this matter is now settled and that our Mexican and Canadian members will approve of the action taken. All members are wel-

(Continued on page 11)

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# Your Society Takes A Forward Look

## A MESSAGE FROM THE PRESIDENT

By H. M. ARMITAGE

Four years have elapsed since amalgamation was effected of the two largest entomological societies in America—the old Entomological Society of America and the American Association of Economic Entomologists.



H. M. ARMITAGE

During that period most of the problems inherent in such a situation have been ironed out. The major problem still confronting the new Entomological Society of America, is the revision of the Constitution and By-Laws, by amendment, in a manner acceptable to both the academic and to the economic entomologists now making up the membership. Basically, this revision revolves around assurance of proper representation of both groups on the Governing Board, in directing the affairs of the Society.

The proposed revision is now in its final stages after two years of concentrated effort by a very hardworking committee headed by Dr. H. M. Harris, assisted by Dr. H. H. Ross and Dr. B. B. Pepper. The major changes were presented to the membership in attendance at the final business session of the recent annual meeting of the Society in New York City. It is printed in full elsewhere in this issue of the BULLETIN for your careful consideration and suggestions before being submitted to the members present at the next annual meeting in Memphis for such further change as seems desirable. It will then be submitted to the entire membership by mail ballot, for approval, a two-thirds affirmative vote being required for passage.

The basic change in the proposed revision introduces two "Divisions"—Basic and Applied—each having three representatives on the Governing Board, replacing the Sections in that respect. Sections are retained only for programming purposes and are increased in number from six to twelve, to more adequately meet subject needs.

Another major change concerns the manner of selecting nominees for the office of President-elect, in which a slate of three members, selected by the Governing Board, will be presented to the membership for the selection of one on the basis of a plurality vote. As the Board will be made up of the representatives of the Branches, and of the Sections through the new Divisions, it does not materially change the character of those formerly responsible for selecting the nominees. It does provide, however, that the selections be made through group discussion rather than independently, as in the past. It will thus permit proper consideration of geographic and subject interests, on a rotating basis, and eliminate much of the confusion that has unavoidably developed under the previous system.

All other proposed changes in either the Constitution or the By-laws are more or less academic and of minor importance. However, they will provide for a smoother administration of the Society's rapidly increasing business.

With the Constitution practically out of the way it would seem that we might now back off and take a long range view of just where the new Society is heading. Under amalgamation it is going to be just another, but larger, group of entomologists plodding the same old paths, or is it going to be alert to, and accept, the responsibilities presented in keeping pace with a changing world, making the Society of maximum benefit to the science of entomology as well as to its members, both collectively and individually. If the latter is to be followed, and there would seem no other conceivable course, there are two major issues facing the Society that demand early action: first, the establishment of professional standards within the Society membership; and secondly, increased association and cooperation with other biological scientific groups. Neither of these problems is new but circumstances are bringing them to the front.

In the matter of professional standards the title of "Entomologist" has long been, and is being, used all too loosely to receive any proper professional recognition. For example, lack of such recognition may have been important in the elimination of professional classifications in federal civil service, and possibly in that of many states, and placing such service under a general classification, has resulted in a serious loss of rating and pay where entomologists are concerned. Again, in the military services, entomologists are seldom given important supervisory positions but are almost always placed under the supervision of medical doctors or other officers who may know little, if anything, about entomology. As a result they, also, suffer severely in both rating and pay. A resolution requesting the re-establishment of professional classifications in federal civil service was approved by the Board at the New York meeting and referred to a committee sponsored by the National Research Council which is pressing this point with respect to all sciences. However, professional recognition in the case of entomologists would still seem to lie in establishing an acceptable official definition of an "entomologist."

At the present time, anyone having an interest in entomology and willing to pay the required dues is, by constitutional provision, eligible to membership in the Society. This is as it should be. However, such membership does not necessarily carry with it the title of "Entomologist." This title should be reserved to, and permitted use only by, those individuals having a degree in entomology, or who, during long service, have made outstanding contributions in the field of entomology. In general, this thought parallels the membership pattern followed in the American Association for the Advancement of Science.

To meet this situation a standing committee on Professional Training, Standards and Status has been established within the Society. This six man committee is made up of representatives of the various entomological interests of Society members. Their duties are to fully explore the problem and to make recommendations to the Board at the earliest possible date.

But, there is more to this problem than may appear on the surface. The establishment by the Society of professional standards defining an entomologist carries with it the further responsibility, first, of outlining a curriculum as a basis for giving a degree in entomology; and secondly, the accredita-



tion of schools, colleges, and universities, which elect to follow such a curriculum. These measures, obviously, will require study and time to accomplish, but the appointment of a standing committee to explore the field is a basic and positive step in that direction.

It would seem obvious, if the Society is to attain and maintain the professional standing with other scientific groups to which it is entitled, that it will have to associate more closely with them than it has in the past. It has been an affiliate of the *American Association for the Advancement of Science* for several years and appoints two representatives to their Council each year who must be "Fellows" in AAAS. Also, by long standing agreement, the Society has met concurrently with AAAS about every five to ten years, as they did in New York in 1956.

However, the Society has never identified itself with the *American Institute of Biological Sciences*, which would seem more important than being affiliated with AAAS. There may have been good reason for not doing so in the past, but it would now seem that the Society would benefit greatly by doing so. AIBS is composed of thirty-six member, associate, and affiliated biological organizations having a combined membership of approximately 14,000 members. They meet each year in mid-summer on a University campus. This year they meet on the campus of Stanford University at Palo Alto, California. A special committee has been set up to explore the possibility of closer affiliation with this group in future years. One of its members has been invited to sit in as an observer at the Board meeting held in connection with the Stanford meeting. Membership in, or affiliation with this group need not necessarily be carried to the point of meeting with them each year. However, it would permit representatives of the Society taking part in all of their deliberations concerned with biological fields. It is hoped that the committee will have a recommendation to make at the Memphis meeting.

At the moment, the most pressing problem of concern to the future of the Society is that of finances. It is daily becoming increasingly self-evident that the Society must find some means of placing itself on a more sound financial basis than at present, if it is going to continue to function effectively. Following amalgamation, Society expenses have mounted rapidly, primarily for the reason that the original organizations were operating almost, if not entirely, with voluntary, unpaid help. It quickly became necessary to employ a full-time secretary with adequate office help, purchase needed office equipment, and meet mounting publication costs. The current annual budget now exceeds \$100,000. Even though the Society may appear on paper to be operating on a balanced budget, it is only because it is still dependent on voluntary help in editing the publications which are the life of the Society. This cannot, and should not, be long continued.

Both the *ANNALS* and the *JOURNAL* are of sufficient size to merit, as well as require, full-time, paid editors with adequate office assistance. Those who are complaining the loudest about delay in the publication of their papers are not the ones who are giving a tremendous amount of personal time, after regular working hours, without compensation, in order to edit, check galley proof, and otherwise prepare these papers for the printer. It would seem proper, here, to recognize the untiring, unpaid, efforts of Dr. Maurice T. James as Editor of the *ANNALS*, and of Dr. Fred W. Poos as Editor of the *JOURNAL*. They are doing an excellent job which is sincerely appreciated.

The Society is temporarily enjoying free office and publication storage space which there is no assurance will be long continued. Paid space, wherever located,

is going to be expensive. Reimbursement for travel expense may have to be made to assure attendance of representatives at Board meetings. We cannot continue indefinitely to restrict such offices to individuals whose employers are willing to meet this cost, and there are not too many that can afford it out of their own pocket for three years, as now required. We should remove ourselves from the position of depending on Industry, which has been more than generous in the past, to come to our rescue when we get into financial difficulties, particularly as they now hold the role of paid Sustaining Associates.

These matters are all being placed in the hands of the newly created standing *Finance Committee*. They are presented here to prepare you for a justified request for an early increase in the current, very nominal dues, which can be made only with full membership approval.

A special committee has been set up within the *Governing Board* to review the entire Society publication situation, not only to see how each publication can be put on a fully self-supporting basis, but to meet a growing demand for other publication outlets. Several new publications have been the direct result of amalgamation and are closely tied in with the future of the Society.

The first of these was the *BULLETIN* which is fast becoming the most widely and the most completely read publication in the entomological field, thanks to Secretary Bob Nelson who is doing an outstanding job in selecting and arranging its content and in assuring its regular quarterly appearance. Its articles are restricted to subject matter of concern to readers of both the *ANNALS* and the *JOURNAL*. It represents an invaluable permanent, readily accessible file, covering Society and Branch affairs. It goes to all of the membership and serves as a medium in keeping it promptly and fully informed of all *Governing Board* action, as well as that of committees—not previously always available.

The second was the long needed *ANNUAL REVIEW OF ENTOMOLOGY*, sponsored by the Society and put out under the able editorship of Dr. Edward A. Steinhaus. The first volume was exceptionally well received, as appears to be the base with the second which has just come off the press. Planned content of future volumes, as already announced, makes possession of personal copies by working entomologists, almost a "must." Full support by the membership is essential to its continued publication.

A third is represented by a Brochure titled "*OPPORTUNITIES IN PROFESSIONAL ENTOMOLOGY*," prepared by a committee headed by M. P. Jones. It is being given wide distribution. Its purpose is to encourage interest in entomology, at the student level, as a career. It must be filling a real need as the continuing demand for copies is exceeding all expectations.

With respect to the future there is a growing demand for a "popular" series of publications, and another to handle so-called "entomological classics." There is also a need for developing a publication outlet for papers now too long for either the *ANNALS* or the *JOURNAL*, and too short, or not of the proper content, to be handled under the *THOMAS SAY FOUNDATION*. All of these matters require immediate study and early action which it is anticipated will result from committee consideration.

It has long been felt that there should be some visible evidence of the existence of Entomology as a profession and of membership in the Society representing that profession. To that end a special committee now has under consideration the designing of a "membership card" to be issued as an annual receipt for dues and serve as evidence of member-



ship in good standing in the Society; a "pin" which may properly be worn by all Society members; and a "pin" or "key" which would be restricted in use to recognized entomologists. In this, the committee is working closely with the committee on *Professional Training, Standards and Status*.

This is "your" Society with which you should be proud to be identified. Its future is entirely dependent on your active interest and support. It is only as strong as you make it.

Your comments and suggestions are not only invited, but are necessary if the Society is to continue to effectively serve you and entomology, as a profession.

## Termite Control

As a member of a special committee of the Building Research Advisory Board of the National Academy of Sciences—National Research Council—Dr. Thomas E. Snyder has briefly summarized Report No. 448 on "Protection Against Decay and Termites in Residential Construction." This study, issued May 10, 1956 was conducted for the Federal Housing Administration.

Sound construction practices are of primary importance in decay and termite control. Local experience should determine the relative severity of these hazards. Control measures should be in direct relation to potential damage. Such measures must vary with the regions of heavy, moderate and slight damage, as well as with the types of construction, slab-on-ground, crawl-space, and basement houses.

With the greater number of slab type structures being built, it has become necessary to recommend the use of chemically treated wood where it is in contact with masonry. The treatments must follow Federal Specifications TT-W-571. An alternative is naturally durable woods. In either case these woods must be trade or grade marked.

Soil treatments include chemicals found effective at varying dosages recommended by the Federal Forest Service. Proprietary materials are approved if they contain one or more of Federal approved chemicals in the concentrations recommended and if no toxic effects to animals or plants will result from their use. Or, if they have use or service experience records establishing them as of equivalent value. An adequate damage replacement guarantee—5 year minimum—with proper financial backing is required.

Properly designed, installed and inspected termite shields of corrosion resistant metals branded by the manufacturer are effective physical barriers. Or, poured concrete foundations with no vertical cracks more than 1/64 of an inch in width.

Or, poured, reinforced concrete caps on unit masonry foundations with no vertical cracks greater than 1/64 of an inch in width.

State entomologists will be called upon most frequently to evaluate the work of commercial termite operators. Most effective work can be expected from those firms giving a 5-year damage replacement guarantee with adequate financial backing. Some firms only agree to re-treat after their service has failed.

## Meetings

EATONTON, GEORGIA. Rock Eagle 4-H Camp, March 19-20, 1957. The Twenty-First Meeting of the Georgia Entomological Society. H. O. Lund, Secretary, Baldwin Hall, University of Georgia, Athens, Georgia.

DES MOINES, IOWA. The Savary Hotel. March 27-29, 1957. Twelfth Annual Meeting, North Central

Branch, Entomological Society of America. Secretary-Treasurer, C. W. Wingo, 102 Whitten Hall, Columbia, Mo.

MIAMI BEACH, FLORIDA. DiLido Hotel. April 28-May 2, 1957. The Thirteenth Annual Meeting of the American Mosquito Control Association. Ernestine B. Thurman, Chairman, Standing Committee on Public Relations, AMAC, National Institutes of Health, Bethesda 14, Maryland.

PORTLAND, OREGON. Multnomah Hotel. June 26-28, 1957. Forty-first Annual Meeting, Pacific Branch, Entomological Society of America. Secretary-Treasurer, H. H. Keifer, 1112 Swanston Drive, Sacramento 14, Calif.

HAMBURG, GERMANY. September 8-15, 1957. IV International Congress of Crop Protection. Dr. Harold Richter, President, Biologisches Bundesanstalt für Land- und Forstwirtschaft, Messeweg 11-12, Braunschweig, Germany.

MEMPHIS, TENNESSEE. Hotel Peabody. December 2-5, 1957. The Fifth Annual Meeting of the Entomological Society of America. President H. M. Armitage, 1617 41st Street, Sacramento, California; Chairman, Local Arrangements Committee, H. G. Johnston, National Cotton Council, Memphis, Tennessee; Chairman, Program Committee, E. N. Woodbury, Hercules Research Center, Wilmington, Delaware; Executive Secretary, R. H. Nelson, 1530 P Street, N. W., Washington 5, D. C.

MEMPHIS, TENNESSEE. Hotel Peabody. December 2-5, 1957. The Thirty-second Annual Meeting, Cotton States Branch, Entomological Society of America. In conjunction with the Fifth Annual Meeting of the parent Society. Secretary-Treasurer, M. E. Merkl, Box 202, Leland, Mississippi.

BANGKOK, THAILAND. Chulalongkorn University. November 18-December 9, 1957. Ninth Pacific Science Congress of the Pacific Science Association. Office of the Secretary-General of the Congress, Department of Science, Ministry of Industry, Bangkok, Thailand.

## American Mosquito Control Association

The 13th annual meeting of the American Mosquito Control Association, Inc., will be held in the DiLido Hotel at Miami Beach, Florida, April 28-May 2, 1957. Subjects of invitational papers include a report of the world-wide malaria eradication program, an evaluation of insect resistance to insecticides and its future significance on a world-wide basis, a report of the present status and future possibilities of biological control of mosquitoes, and a discussion of the importance of the relationship of taxonomy to mosquito control.

## Tenth International Congress of Entomology—Photographs

The photographers of the Bio-Graphic Unit, Canada Department of Agriculture, took many pictures of individuals and groups during the Congress.

Copies may be obtained from Mr. G. H. Parker, Head, Bio-Graphic Unit, Science Service Building, Ottawa, Ontario, at the following rates:

Black-and-white, glossy	
5"x7"	\$0.30 each
8"x10"	\$0.50 each
Color, glossy (Printon material)	
3x from 35 mm.	\$0.70 each
5"x7"	\$1.65 each
8"x10"	\$3.15 each

The delivery time will be up to two months, as the prints will be made in batches. Please send money with the order.

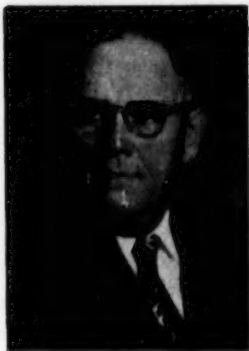
# What Have We Learned From The Codling Moth?<sup>1</sup>

By B. A. PORTER

Entomology Research Branch, Agricultural Research Service, U.S.D.A.

Over the years the codling moth (*Corporcapa pomonella* (L.)) has occupied a prominent place in the field of economic entomology. This insect may be found throughout the world, in almost all areas in

which apples or pears are grown commercially. It occurs in all States or Provinces in the United States and Canada, and is of economic importance in most of them. Uncontrolled, the codling moth will destroy the greater part of an apple or pear crop. In some areas where conditions have been especially favorable, the codling moth has been one of the important causes of a decline in apple production.



B. A. PORTER

With the establishment of the agricultural experiment stations in all States during the latter half of the nineteenth

century, the codling moth became a favorite subject of investigation, and it is an unusual experiment station that does not have a series of publications dealing with this insect. A list of authors compiled from the older codling moth literature of the United States is virtually a Who's Who of early economic entomology, and includes such names as Harris, Riley, Howard, Walsh, Lintner, Smith, Saunders, Gillette, Forbes, Cook, Slingerland, and a number of others better known for their subsequent work in other fields, as Marlatt, Townsend, Coquillett, Cockerell, and Aldrich. Since the turn of the century a greater specialization has permitted many entomologists to ignore this particular insect, but actually the number of workers on the codling moth has steadily increased.

Because of the general interest in this insect, and the number of entomologists working on it, the many years spent in conference discussing the problem and listening to papers on it have reached an astounding total. If all the words that have been written and spoken on the codling moth were placed end to end, the line would reach far into the stratosphere, if not into outer space. I will leave it for the statistically minded to estimate just how far this line would extend. The literature on the subject has become so voluminous that for many years no one has been able to review it all. In 1888 Dr. L. O. Howard, summarizing information about this insect, stated that he had intended to include a bibliography but there were so many references that space limitations prevented. References continued to accumulate at a steadily increasing rate, at least until the middle 1940's. For example, Index VII to the LITERATURE OF AMERICAN ECONOMIC ENTOMOLOGY for the five-year period 1940-44 included 637 entries. Al-

though there is some duplication of entries under the various subheadings, this figure probably understates the total number of papers that appeared during the period, since many popular items that appeared in the agricultural press or elsewhere were not included in the Index.

Although the attention given to the codling moth might seem to have been out of proportion to the insect's total importance, the work on it has actually been of value over a much broader field. When the use of lead arsenate for codling moth control became general, a number of other apple pests disappeared from commercial orchards. So in dealing with the codling moth the grower has incidentally, usually without realizing it, dealt with a wide array of other pests. This fact came out most clearly when DDT supplanted lead arsenate; several pests on which DDT had little effect suddenly became abundant.

Since the middle 1940's, when the use of DDT for codling moth control became established practice, the flood of words spoken and written about this pest has subsided. DDT has given remarkable control, especially in the Northwest. In that region six to ten sprays of lead arsenate or cryolite in a season had formerly been applied, often with poor success and with attendant difficulties with spray residue and its removal. DDT changed this picture completely. One to three applications of DDT in a season gave almost perfect control, at much lower cost and with no residue problems. The relief thus afforded has been so great that at a number of recent fruit growers' meetings in the Pacific Northwest no papers on the codling moth have been included, or the insect has been given a very minor place in the programs, whereas it was formerly the central theme. In the East and Middle West, control with DDT is less easy, but even so, the improvement over lead arsenate has been remarkable.

Outstanding as the advance resulting from introduction of DDT has been, we must not rest on our laurels and indulge in a mood of complacency. We may at any time be suddenly jolted out of such a mood. There are numerous indications that codling moth populations here and there are developing resistance to DDT. This could suddenly become general. Although we may congratulate ourselves for the progress that we have made, we should also consider the lessons we have learned, or should have learned, during the past 75 years, and then look into the future to see what is likely to lie ahead.

Perhaps the most important lesson that our experience has taught us is that the codling moth problem is not a simple one that can be readily solved and will stay solved. Many of the reports and project statements of bygone years, at least in the U. S. Department of Agriculture, have implied that a few more years of work should solve the problem and the job would then be completed and could be discontinued in favor of some other problem. I suspect that similar implications could be found in the archives of many State experiment stations. E. J. Newcomer, who retired two years ago after spending more than 40 years in Federal work on fruit insects in the Northwest, much of it on the codling moth, told me that in 1911, when he was about to graduate

<sup>1</sup> Presidential Address, Fourth Annual meeting of the Entomological Society of America, December 27, 1956, New York, N. Y.

from Leland Stanford University, Professor Vernon Kellogg warned him against taking a job that involved work on the codling moth. He said that this problem was about worked out, and there was little further to be done. One of the early State workers is reported to have said, after completing a few seasons' work on this and other fruit pests: "What on earth are we going to work on next?" I was in frequent touch with this man's work in later years, and I am sure that as time went on he realized the temporary nature of our solutions to most insect problems.

We know now that the codling moth problem is one that is continually changing, and one for which no permanent and easy solution is possible. We are dealing with a very prolific and adaptable insect. Its environment and other conditions affecting abundance are also continually changing, often to the advantage of the insect rather than the fruit grower.

We have learned that the insect has a tremendous reproductive capacity. The increases in worm population that occur in orchards when control efforts are relaxed are very impressive. There are numerous cases on record in which severe freezes eliminated practically an entire apple crop, reducing the codling moth population nearly to the vanishing point. To carry this reduction even further, some of the growers tried to locate and destroy the light scattering of fruit that remained, but the insect usually made a startling comeback within two years.

It is doubtful whether this insect's potential for increase has ever been adequately measured, although it can be computed on a theoretical basis. The first worms to come along in the season cause much of the infested fruit to drop. If the first brood is large enough, as often occurs in neglected or poorly sprayed orchards, much of the crop may drop to the ground in a short time, leaving little fruit on the trees to receive the attack of later broods. There have been numerous records of three or more worms per apple by midseason, and by that time most of these apples were on the ground. If they could somehow have been held on the trees until the attack was over for the season, there might have been as many as 10 to 20 worms per apple. This potential means that control measures must be highly effective if they are to be of practical value. The reduction of a potential infestation of 10 worms to one per apple may look good percentage-wise, but to the grower the crop is still a total loss and his efforts have been wasted.

In our evaluation of the changes in the codling moth problem, one important factor is the change in the standards by which control is judged. With the trend toward concentration of commercial apple production in areas remote from markets, the production of high-grade fruit is more essential than ever. In these areas, often thousands of miles from major markets, moderately injured fruit, which might bring something locally, is a total loss, since it is not worth shipping to distant markets. Our control programs must now attain much higher standards than 75 years ago.

Many of the changes in grower practices have given advantage to the codling moth. Apple growing has passed from small, isolated farm orchards to more concentrated production in limited areas. With an abundance of its favored food available over extensive acreages, with improved varieties and cultural methods that have eliminated in part the biennial bearing habit that characterized many of the older apple varieties and automatically held the codling moth infestation at a low point, it is not surprising that the present-day grower has to deal with a more numerous worm population. Many of these specialized areas have an arid climate, and

high daytime temperatures in the summer. Within limits, both these factors are favorable to the codling moth. As apple production has moved into such areas, control has become more and more difficult.

Among the different ways in which the codling moth has manifested its adaptability to changes in its surroundings, probably the most important has been its ability to adapt itself to a poisonous environment. W. S. Hough, of the Virginia Agricultural Experiment Station, was the first to attack this phase of the problem. In the 1920's he brought together codling moth strains from areas in which spray programs of different intensities were needed for adequate control. He then allowed newly hatched worms of the various strains to try to chew their way into the lead arsenate-sprayed apples, as they do in the orchard. Dr. Hough compared worms from Virginia orchards in which three or four sprays gave almost complete control, with worms from near Grand Junction, Colo., where the insect was notoriously hard to deal with. In the first season's tests 31 to 39 percent of the worms from Colorado stocks went through the poison successfully. On the other hand, only 5 to 7 percent of the worms from Virginia survived. He reared both strains in the insectary through 14 or more generations, and found that these differences persisted. He later found that worms from Virginia orchards that had been regularly well sprayed with lead arsenate entered sprayed fruit in much greater numbers than those from unsprayed or poorly sprayed orchards. Strains from various Virginia orchards fed on sprayed fruit through successive generations in the insectary became more and more resistant to lead arsenate and were able to enter sprayed fruit in increasing numbers. In the 1930's L. F. Steiner, of the USDA laboratory at Vincennes, Indiana, confirmed Hough's results and added to our knowledge of the problem.

It appears that the situation with respect to resistance may be summarized as follows. Most populations of the codling moth include individuals that vary greatly in their susceptibility to lead arsenate and presumably to other insecticides. Some are easily killed, but some can survive in the presence of considerable quantities of certain insecticides. This surviving stock apparently carries in its genes some factor that makes it resist the insecticide. This characteristic is transmitted to the offspring, and we then say, perhaps rather loosely, that the codling moth has become resistant.

The development of resistance to insecticides in the codling moth, and two other instances that were noted at earlier dates—the San Jose scale (*Aspidiotus perniciosus* Comst.) to lime-sulphur and the California red scale (*Aonidiella aurantii* (Mask.))—foreshadowed a much more general manifestation of increased resistance to insecticides that has occurred since about 1945. These recent developments have resulted from the use of the new organic insecticides, have come with great speed, and have been spectacular. Perhaps this is because the species involved, such as flies, mosquitoes, and spider mites, have very short life cycles and many generations a year so that the selection can proceed more rapidly.

To be profitable, this backward look in which we have been indulging should serve only as a basis for a forward look. We should not be like that mythical bird that always flew backward; it was intensely interested in where it had been, but cared little about where it was going. So, with the lessons of the past in mind, I will express a few thoughts about the future of work with the codling moth.

In planning future activities we should not take any previous conclusions as final. Most of them were sound, but some of them may have been in error, although logical from the evidence then available.



For instance, one of the earlier workers stated that light traps would not capture enough codling moths to pay for the matches used in lighting them. He was working with kerosene lanterns placed over a pan of water on a post in the orchard. Years later D. L. Collins in New York State showed that moths could be attracted by certain types of electrocuting electric-light traps placed in the upper parts of the trees. Enough moths could be caught in this way to show definite reductions in population and also in damage to the fruit, although not enough to permit the elimination of much spraying. The use of such types of lights still appears impractical, however, because of the cost of installation and maintenance.

In our planning we should not put all our eggs in one basket. In the first 35 years of the present century the entire emphasis was on lead arsenate. Much of the work during the first ten or fifteen years consisted of attempts to convince growers that spraying was worth while. Then experiments were carried on to determine whether the codling moth could be controlled with one spray application instead of several in the same season. The relative merits of a coarse driving spray and a fine mist spray and the value of stickers and other accessory materials were investigated. The spray program was stepped up in many ways. The strength of the spray mixture, the number of applications, and the number of gallons per tree were all increased.

All this work had one objective—to make the use of lead arsenate more effective. Even the extensive biological work done during that period took the form of life-history studies that had as their main purpose the improvement of the timing of spray applications, and thus an increase in the effectiveness of lead arsenate. However, in spite of all these efforts the problem grew steadily worse. Then during the middle 20's and early 30's the announcements relating to residues of arsenic and lead came as bombshells, creating consternation among growers and among entomologists who were responsible for solving the growers' problems. Frantic but generally unsuccessful efforts were made to develop substitute insecticides. Cryolite replaced lead arsenate in many orchards in the Northwest, but wasn't much better. For many years the only solution of the problem was to put on plenty of lead arsenate or cryolite and then remove it before the fruit was marketed. It was not until DDT came along that there was much relief.

As far as insecticides are concerned, we shall probably never again have all our eggs in one basket, as we did when lead arsenate and later cryolite were the only effective materials available. Several insecticides are now in sight that might replace DDT, at least in part, if resistance to this material should become general.

From now on we should not neglect problems of spray residues. There was a tendency for many years to minimize the possible dangers in the excessive use of lead arsenate. The early literature contains numerous statements that to be harmed by spray residues a person would have to consume at one sitting a bushel of apples or a half-barrel of cabbages. Such statements ignored any possible cumulative or chronic effects. The actual danger of chronic poisoning from spray residue may be a debatable question, but the public is convinced that such a danger exists. There is probably no need to stress further the residue problem. Those officials responsible for the enforcement of the Food, Drug and Cosmetic Act and the Miller Amendment to it, as well as those responsible for the registration and labeling of insecticides, will see that the matter of spray residues is not overlooked.

In planning our work we should not restrict our efforts to the development of new insecticides. Although this phase of codling moth control will un-

doubtedly have a major place in our thinking and in our research program, we should give more attention to other means of control. I have often wondered what would happen if some well-trained young entomologist were assigned to the codling moth problem, given adequate equipment, facilities, and help, but placed under one restriction—that he should devote his entire energy to control methods other than the use of insecticides. The odds would probably be against him, but it is an interesting thought for speculation.

We should re-explore the possible use of lures. We already have traps and lures that take tremendous numbers of moths, but thus far they have shown little value as a means of control. In one 10-acre block in the Northwest a number of years ago, 144,000 moths were taken, and yet the fruit in this block was just as badly damaged by worms as that in the adjacent unbaited blocks. What the situation would have been if the block in which the traps were maintained had been completely isolated is, of course, unknown. However, as with other means of control, the possibilities in the use of lures and traps have by no means been exhausted.

Biological control should also not be overlooked. Some enthusiasts who are poorly informed on such matters talk or write glibly of the "balance of Nature," assuming that the attainment of such a balance would solve most of our problems. Actually, Nature's balance is not necessarily in favor of the grower, who wishes to market a crop of perfect, worm-free fruit. Nature seems to be just as well satisfied with a thriving population of worms.

We have all heard older people talk about the wonderful fruit that they used to enjoy during their boyhood, when spraying had never even been heard of. We wonder if they have not forgotten some of the facts of their boyhood. In the published proceedings of some of the early meetings of horticultural societies we find complaints that too many of the apples in the exhibits showed indications of damage by the codling moth and other insects. If exhibit fruit showed such damage, what of the orchard-run fruit that might be placed on the market? The amount of wormy fruit on the ground and the numbers of picked apples that had to be discarded because of their wormy condition may have been forgotten.

From time to time there are reports that certain unsprayed orchards carried a crop of very satisfactory apples. However, I have never been able to find such an orchard. Certain efforts to create such situations by discontinuing spraying for several years and letting Nature take its course have all ended in failure from the grower's standpoint. The parasites and predators, though present in small numbers, have not increased enough to give control. In Nova Scotia, however, interesting progress has been made in this direction by Pickett and his associates. Selective insecticides, which are effective against the insect pest but do not harm its parasites and predators, have also given interesting results, as reported by Pickett in Nova Scotia and by Clancy in West Virginia. However, in West Virginia the benefits were reflected for the most part in the control of mites rather than the codling moth, which was well held in check by the use of ryania.

Theoretically, we should be able to rear parasites and release them in sufficient numbers to give immediate control of the worms. However, efforts to do this with the egg parasite *Trichogramma* failed a number of years ago, and the release of the egg-larval parasite *Ascogaster quadridentata* Wesm. (formerly called *carpocapsae* Vier.) gave even less encouragement. It is quite probable that with present-day insecticides we are in most areas giving up all chances of the effective utilization of parasites.

Although the prospects of controlling the codling moth with parasites and predators do not look favorable, the use of diseases seems more interesting, to say the least. Early work with diseases of the codling moth did not go much beyond observations on what has been going on and, in some cases, the identification of the casual organisms. Recent successes in direct control of certain insects with virus diseases suggest that this area should be thoroughly explored. Observations by Hough and Dutky on the effect of a nematode and closely associated bacteria suggest another field that should be investigated. The utilization of disease organisms might also require changes in the fungicide program for the control of fruit diseases.

Looking backward again, we realize how superficial much of our work has been. Nearly all our efforts have dealt with problems of immediate importance, and a pitifully small proportion has gone into investigations of a basic or fundamental nature. Since I must, on behalf of my own organization, plead guilty to this charge, I am in poor position to criticize anyone else. Actually we are all in the grip of circumstances. There has always been so much pressure for information needed for immediate practical use, and in the last 10 to 15 years so many new materials have appeared on which growers demanded information, that no basic long-range program has had a chance. Among those who hold the purse strings—or those having the greatest influence on those who do—there seems to be a recognition in theory of the need for basic work. However, when definite proposals are before them, they always give highest priority to the projects likely to give results of immediate practical importance.

In all our planning we should strive to give basic research a much greater part in the entire program. This will not be easy. Growers will continue to clamor for information of immediate practical value. New insecticides that require testing will continue to appear in considerable volume, in spite of the restrictions and costs imposed by recent legislation. All this may absorb most of the entomologists' time, but in some way we should manage to get in more studies of a basic nature. Until we know what goes on inside a normal codling moth larva, the mode of action of various insecticides when the insect swallows or is otherwise exposed to them, and what happens inside the insect when a given population becomes predominantly resistant, we are working in the dark.

We should also know what happens in the codling moth adult when it is attracted to fermenting sugar solutions or other bait materials. This too is not an easy job. It calls for a man highly trained in the fundamentals of entomology teamed up with a well-qualified microbiologist, or a biochemist familiar with the chemistry of fermentation, or both. They should be provided with adequate laboratory facilities and given ample assistance and uninterrupted time in which to carry on this work. This ideal may be unattainable at the present time, but we should work toward it.

The entomologist who undertakes research on the codling moth is faced with the monumental task of reviewing the literature to analyze and evaluate what has been done. Information on earlier research is buried in a mountain of papers, many of them of a popular nature that usually do not represent research advances. The younger workers often come up with ideas or observations that are new to them but could be found in earlier literature if they had time to review it thoroughly. If some agency had periodically, perhaps once in five years, reviewed and evaluated the codling moth work reported during the period, and had published summaries of the in-

formation gained, the task of the research entomologist could have been performed more efficiently. This seems to be leading me in the direction of a boost for the Annual Review of Entomology. Or perhaps if the Chemical-Biological Coordination Center of the National Research Council had been established 75 years ago, the task of assembling such information would be much easier. We need more critical reviews and other guides to published information, as an aid in the planning of an effective research program.

I started this paper with a specific insect pest—the codling moth—but I soon found myself philosophizing on various matters relating to the field of entomology. Much of this philosophy has been better expressed by others on earlier occasions. However, I do not apologize for this duplication. Constant repetition seems to be the accepted way of promoting the sale of cigarettes, beer, automobiles, and household appliances. Repetition should likewise be helpful in promoting improvements in our research programs.

We have learned from the codling moth that it is a very adaptable insect. Because of its ability to adjust to changing conditions, including the presence of some insecticides, the problem of controlling it will never be permanently solved, and continuing research is essential if we are to keep up with it. If maximum progress is to be made, the program should place much greater emphasis than formerly on basic research, and this calls for greater teamwork among entomologists, chemists, microbiologists, horticulturists, and representatives of other scientific disciplines.

## Tobacco Abstracts

North Carolina State College recently announced the establishment of the world's first Tobacco Literature Service, and the publication of its first volume of *Tobacco Abstracts*, now being distributed on an international basis.

Dr. Clyde F. Smith, Head of the Department of Entomology, N. C. State College points out that this is a joint undertaking of the D. H. Hill Library and the Agricultural Experiment Station. It will maintain its headquarters in the Library and will be financed largely by the Experiment Station. Miss Margaret Drenowatz, a native of New Jersey and a graduate of Rutgers University Library School, has been named full-time head of the unique Tobacco Literature Service.

The Service will assemble and publish abstracts of literature on tobacco for distribution to tobacco scientists throughout the world. It also will provide library staff service at State College for any tobacco scientist.

It was pointed out that the idea for the Literature Service developed as an outgrowth of a need expressed by tobacco scientists at State College for assistance in assembling and reviewing technical literature for tobacco in the various fields of science. Dr. Ralph Shaw, Professor of Library Science at Rutgers University, President of the American Library Association, and former Director of the U. S. Department of Agriculture Library, is a consultant on this project.

The monthly issues of *Tobacco Abstracts* are being made available to libraries in the United States and in certain other countries. Those interested in subscribing to *Tobacco Abstracts* may do so by writing to the Tobacco Literature Service, D. H. Hill Library, N. C. State College, Raleigh, N. C. Rates are \$7.00 per year for U. S. subscribers and \$10.00 per year for foreign.

MINUTES OF THE OPENING SESSION AND BUSINESS MEETINGS  
ENTOMOLOGICAL SOCIETY OF AMERICA

*December 27-30, 1956*

Opening Session  
December 27, 1956

The meeting was called to order at 9:30 a.m. by President B. A. Porter in the Grand Ball Room of the Hotel New Yorker. The invocation was given by Oliver I. Snapp, Representative-Elect to the Governing Board from the Cotton States Branch. Preliminary announcements were made by the Executive Secretary, R. H. Nelson. He emphasized the need for member's placing their orders for the ANNUAL REVIEW OF ENTOMOLOGY prior to the December 1 deadline each year. Such orders reflect to the financial advantage of the Society as was detailed in the June 1955 BULLETIN in an article by E. A. Steinhaus.

President-Elect Armitage then took the chair and introduced President Porter who delivered the presidential address, *What Have We Learned from the Codling Moth?* Dr. Porter's address is printed in this issue of the BULLETIN. Mr. Armitage commented upon the importance and timeliness of Dr. Porter's address. A recess was then declared.

Preliminary Business Meeting  
December 27, 1956

The preliminary business meeting was called to order by President Porter at 10:45 a.m. The President's report was the first order of business.

1. **PRESIDENT'S REPORT.**—At the opening session of the annual meeting it has been customary for the President to report briefly the highlights of the year just closing. I will continue this practice.

It is our belief that the Society has been making definite progress in many ways. When the consolidation was first proposed the committee working on it prepared a tentative budget of probable expenses and income. This budget was approximately \$50,000. The one which will be considered by the Governing Board for the coming year will be in a gross amount of about \$100,000. Although inflation and increased costs of everything are responsible for part of this increase, most of it is a fair index to the progress the Society has made in the last few years.

Any success that has been obtained during the past year is due primarily to the devoted efforts of many people who have served in various capacities. Only a few of these can be mentioned at this time.

First, Bob Nelson has been doing an outstanding job as Executive Secretary. We are fortunate to have him looking after our interests. He will presently have an opportunity to tell his own story, so I will not go into further detail.

Dr. Poos is doing a most thorough and effective job as Editor of the JOURNAL OF ECONOMIC ENTOMOLOGY. He is also doing a great deal of work on the ANNALS. The delay that has occurred in the issuance of these publications is in no way his fault. There have been delays, in spite of continual pressure on the printers. However, we can now boast that the JOURNAL OF ECONOMIC ENTOMOLOGY is being distributed currently. The December number is now in the mail, although probably few of you have yet received your copy.

A conspicuous item in the financial statement which will be published in detail in the March 1957 BULLETIN, is the loss incurred in publishing the

ANNALS. We believe that the continuation of the ANNALS is a service that the Society should perform for its membership and for the entomological profession, and we hope to reduce the deficit, or eliminate it entirely. In fact we are already moving slowly in that direction.

The Program Committee has done a most creditable job. We are proud of the fact that the programs this year were distributed more than a month before the meetings. In working out the program, Dr. Oman's Committee has made a most earnest effort to serve the best interests of the greatest possible number of members.

The Committee on Local Arrangements has also done an outstanding job. Ralph Heal as Chairman, and his associates on the Committee have put a great deal of work into the preparations for the meeting and I am sure things will go smoothly with a minimum of confusion and unsatisfactory features. One of the difficult problems that the Committee had to meet was the matter of the customary banquet. This was going to be exceedingly expensive, and would come at a time when many of our members would prefer to be enjoying the night life of New York. Our compromise this year is a President's Luncheon, an arrangement which we hope will be satisfactory to a majority of the members.

The Governing Board is having a rather difficult problem to fit in its meetings. In recent years the Board has begun its deliberations on the afternoon of the Saturday preceding the meetings. They have had Saturday afternoon and evening and all day Sunday and Sunday evening if needed, to consider the various matters that are presented to it. We were able to meet a few hours last evening, but will of necessity hold most of our meetings while paper-reading programs are under way. This is unsatisfactory but has been unavoidable this year.

One of the pleasant privileges that go with the responsibility that has been on my shoulders the past year has been to attend all five of the Branch meetings. I found this to be a most interesting and enjoyable experience. No two Branches are alike. They all have different ways of running their programs, different traditions, and different problems.

The Governing Board voted during the year to appropriate \$100. for the division of Biology and Agriculture of the National Research Council to aid in financing a vocational guidance booklet which they were getting out, entitled *Challenge of the Life Sciences*. Entomology was fully recognized in this publication and we felt that its issuance was in the interest of our profession.

Carroll Smith served as a special representative of the Society at the inauguration of Dr. Julius Wayne Reitz as President of the University of Florida.

On the insistence of some of my associates I served as Society Delegate to the Tenth International Congress of Entomology at Montreal, Canada, during the latter part of August, 1956. My comments on this gathering were made in a letter addressed to the President of the Congress. This letter was published in the September 1956 BULLETIN.

At a testimonial dinner given to Dr. E. N. Cory on the occasion of his retirement from the University of Maryland, I expressed the appreciation of the Society for the services rendered by Professor Cory over the years.



At the request of individuals in the Library in the Department of Agriculture I wrote a letter in support of a superior service award for Miss Ina L. Hawes for her outstanding services in the preparation of the INDEXES OF AMERICAN ECONOMIC ENTOMOLOGY. I am pleased to say that such an award was made by the Department early in June 1956. It was most fully deserved.

In accordance with the action of the meeting last year a *Committee on Memorial Lecture and Awards* has been designated. W. F. Hayes is serving as Chairman. The other members are C. C. Compton, E. Gorton Linsley, C. K. Dorsey and C. B. Philip. Unfortunately there was some delay in the appointment of the committee, so they may not have a great deal to report at this meeting. However, President-Elect Armitage has agreed to continue the committee as originally designated.

The *Resolutions Committee* appointed to serve at the meeting consists of Edward H. Glass, W. W. Middlekauff, and John Osmun, *Chairman*. Anyone who wishes to propose resolutions for consideration at our final business session should present them to one of the members of this committee.

The new officers that have been elected to serve the next year include the following: President-Elect, Robert L. Metcalf; Representative to the *Governing Board* for Section D, Medical and Veterinary Entomology, K. L. Knight; for Section E, Control, Extension and Regulatory Entomology, M. P. Jones; for the Cotton States Branch, O. I. Snapp; for the Southwestern Branch, P. J. Reno; and for the Pacific Branch, Ed H. Littooy.

P. J. Reno was elected at the meeting of the Southwestern Branch to fill a vacancy that already existed, so has been serving on the Board this year. The other individuals will take office at the close of the final session of this meeting.

2. President Porter introduced the Executive Secretary, R. H. Nelson. The Executive Secretary presented a summary of the auditor's report and moved its acceptance. The motion was regularly seconded from the floor and carried. The complete report is published elsewhere in this issue of the *BULLETIN*. The Executive Secretary also gave a summarized report of the activities of the Washington office.

3. President Porter requested the reading of the reports of the standing committees. The Executive Secretary read each of the following reports. As each report was read he moved its acceptance. All acceptance motions were regularly seconded from the floor and carried. The reports are published elsewhere in this issue of the *BULLETIN*.

#### *Program Committee*

*Committee on Insecticide Terminology*

*Committee on Insecticide Reference Standards*

*Committee on Common Names of Insects*

*Committee on Membership*

*Committee on Entomological Nomenclature*

4. At President Porter's request, President-Elect Armitage read the report of the *Committee on Insect Surveys*. Mr. Armitage read the report and moved its acceptance. This was regularly seconded from the floor and carried.

5. The meeting recessed at 11:30 p.m. to reconvene at 3:30 p.m. December 29.

#### **Final Business Meeting**

**December 29, 1956**

The meeting was called to order at 3:30 p.m. by President Porter. There were about 200 members present. The following actions of the *Governing Board* as approved at their meetings on December 26, 27 and 28 were presented by the Executive Secretary. There were no questions from the members present.

#### **1. ACTIONS OF THE 1956 GOVERNING BOARD**

The 1957 meeting will be held December 2-5, 1957 at the Hotel Peabody in Memphis, Tennessee. The 1958 meeting will be held December 1-4, 1958 at the Hotel Utah in Salt Lake City, Utah. The three cities to be further considered for the 1959 meeting are Chicago, Illinois, Detroit, Michigan, and Milwaukee, Wisconsin.

A balanced budget for the general fund of the Society for the fiscal year November 1, 1956-October 31, 1957, involving anticipated income and expenditures of \$101,000.00 was checked by the *Governing Board* and adopted.

The list of 23 members approved for Emeritus status was read.

The boundaries of adjoining Branches were extended into the Dominion of Canada and the Republic of Mexico as follows: *Canada*. That portion of Ontario east of longitude 80° and all Provinces east of Ontario in the Eastern Branch. That portion of Ontario west of longitude 80° plus Manitoba in the North Central Branch. All Provinces west of Manitoba in the Pacific Branch. *Mexico*. Baja California, Sonora, and Sinaloa in the Pacific Branch. All other states of Mexico in the Southwestern Branch.

The Board approved the annual contribution of \$100.00 to the Zoological Society of London for the support of the *Zoological Record*.

The Board accepted the reports of the following Society representatives, which are published in this issue of the *BULLETIN*.

a. Representative on the *Joint Committee on Grassland Farming*.

b. Representative to the *National Research Council, Division of Biology and Agriculture*.

c. Representative to the *Agricultural Research Institute, Agricultural Board*.

d. Representative on the *AAAS Council*.

The Board accepted the reports of the following Editorial Boards, which are published in this issue of the *BULLETIN*.

a. *Committee on Indices to the Literature of American Economic Entomology*.

b. *Editorial Board of the Thomas Say Foundation*.

c. *Editorial Board of Entoma*.

d. *Editorial Board of the Journal of Economic Entomology*.

The Board adopted the following resolution for publication in the *BULLETIN* and to be made available to appropriate organizations.

*Whereas*, The Federal Classification Act of 1949 eliminated the distinction and established the present GS (General Schedule) category for both professional and other classification on the theory that the change would simplify the administration of the law and would, therefore, lead to economy in personnel administration; and

*Whereas*, This Act has detracted from the recognition due established scientists and engineers, which has made it difficult for Federal Agencies to attract and hold such personnel; and

*Whereas*, Unless something is done to alleviate this situation, the Federal scientific and engineering agencies will soon deteriorate to where such services will no longer be recognized as outstanding in the different fields, and this is a matter of vital public concern; therefore, be it

*Resolved*, That the Governing Board of the Entomological Society of America at its Fourth Annual Meeting, New York City, December 27-30, 1956, urge an amendment to the Classification Act of 1949 in order to establish a "P" (Professional and Scientific) Schedule in which adjective ratings of the Class are used, such as assistant, associate, senior, etc.; and be it further

*Resolved*, That a copy of these resolutions be included in the official records of this Society and that copies be sent to other scientific associations and societies, and also that they be sent to each member of the Society.

2. The Executive Secretary extended public thanks to President Porter, the 1956 Governing Board, Editorial Assistant Poos and to his Washington office staff for all of their help, suggestions and guidance during the year.

3. President Porter discussed the background leading up to the Governing Board recommending the addition of two new Standing Committees for the Society.

*Finance Committee*. Shall consist of three members, to serve for three-year terms on a rotating basis. Its duties shall be to study matters affecting the financial and business activities of the Society and advise the Governing Board thereon. It was moved by H. H. Ross and seconded by F. W. Poos that this Standing Committee be adopted. Carried.

*Committee on Professional Training, Standards and Status*. Shall consist of six members, to serve for three-year terms on a rotating basis. The primary duty of this committee is to provide long-range guidance to the Society in matters relating to professional training, standards and status for entomologists, and to serve as the medium through which needed improvements in these matters can be officially initiated. It was moved by O. I. Snapp and seconded by W. D. Reed that this standing committee be adopted. Carried.

4. The Executive Secretary read the list of nominations made by the Governing Board to vacancies on the various Standing Committees. There were no nominations from the floor. It was moved by Neely Turner and seconded by George Gyrisco that the slate be elected as read. Carried. The members elected are as follows:

*Committee on Insect Surveys*—N. O. Berry, L. D. Newsom

*Program Committee*—L. D. Anderson

*Committee on Insecticide Terminology*—T. G. Bowery, W. M. Haskins

*Committee on Insecticide Reference Standards*—J. E. Casida

*Committee on Common Names of Insects*—E. P. Keen, A. V. Mitchener, R. I. Sailer

*Committee on Membership*—L. A. Carruth, W. G. Eden

*Committee on Entomological Nomenclature*—J. L. Lafoon, H. K. Townes, J. A. Slater

*Finance Committee*—J. E. Bussart, J. W. Apple, F. L. Campbell

*Committee on Professional Training, Standards and Status*—K. L. Knight, C. E. Palm, E. J. Gerberg, R. E. Heal, Clyde F. Smith, Leslie M. Smith

5. The Executive Secretary read the list of 1957 Chairmen of the Standing Committees as designated by the Governing Board. These are as follows:

*Committee on Insect Surveys*—R. W. Every

*Program Committee*—E. N. Woodbury

*Committee on Insecticide Terminology*—P. A. Dahm

*Committee on Insecticide Reference Standards*—E. E. Ivy

*Committee on Common Names of Insects*—R. I. Sailer

*Committee on Membership*—G. D. Jones

*Committee on Entomological Nomenclature*—J. T. Medler

*Finance Committee*—F. L. Campbell

*Committee on Professional Training, Standards and Status*—K. L. Knight

6. President Porter called upon H. M. Harris, Chairman of the *Committee on Constitutional Amendments*. Dr. Harris discussed the revision of the constitution as developed by his committee and the Governing Board. This was a presentation at the annual meeting and required no formal action or vote. The revised constitution will be published in the BULLETIN for the information of the membership. The matter will be referred to the membership for mail ballot at the proper time.

7. The report of the *Committee on Resolutions*, E. H. Glass, W. W. Middlekauff and John V. Osmun, Chairman, was read by Dr. Osmun. He read each resolution, as presented below, and moved the adoption of each:

**RESOLUTION 1.** *Whereas* the Society has lost a number of members by death since the last meeting,

*Be it resolved*, that this Society, through its Executive Secretary, extend sympathy to the families of the following:

K. W. Bayha  
E. R. Bellemare  
H. R. Bryson  
J. L. Buys  
L. F. Byars  
H. G. M. Crawford  
G. A. Dean  
E. T. Doyle  
David Dunavan  
R. K. Fletcher  
F. G. Hinman  
P. R. Jones  
A. C. Kinsey

R. B. Knapp  
W. H. W. Komp  
C. F. Ladeburg  
G. M. List  
Philip Luginbill, Sr.  
N. E. McIndoo  
Z. P. Metcalf  
J. H. Newton  
L. M. Peairs  
O. J. Smith  
J. M. Swain  
W. V. Tower

Seconded M. P. Jones. Carried.

**RESOLUTION 2.** *Whereas*, the Officers and Committees of the Society arranged a very successful meeting,

*Be it resolved*, that the members express appreciation for the efforts of the officers, *Program Committee*, and *Committee on Local Arrangements*, and others who have contributed toward the success of the meeting.

Seconded R. H. Davidson. Carried.

**RESOLUTION 3.** *Whereas*, the management of the Hotel New Yorker has provided excellent facilities for our meetings,

*Be it resolved*, that we express our appreciation, through the Executive Secretary, to the management of the Hotel New Yorker.

Seconded Neely Turner. Carried.

**RESOLUTION 4.** *Whereas*, the exhibits and other entomological displays at this meeting have been outstanding,

*Be it resolved*, that those responsible for the exhibits be commended for the standards that have been thus established for future meetings.

Seconded C. B. Philip. Carried.

**RESOLUTION 5.** *Whereas*, nematodes are undeniably animals; their classification, structure, development, physiology, biology, and habits follow animal patterns, and therefore they are properly placed in the field of zoology, and

*Whereas*, quarantine enforcement and federal-state cooperative control of nematodes is now a function of entomologists, and

*Whereas*, historically, the control of invertebrate animals has been the responsibility of entomology and economic zoology departments, and

*Whereas*, the research approaches and techniques necessary in the study of the physiology and toxicology of nematodes parallel those now practiced in entomology and economic zoology, and

Whereas, studies in the relationship of chemical structure and toxicity to invertebrate animal tissue is currently a research responsibility of the entomologist, and

Whereas, entomologists have accumulated a large body of experience in the study and control of soil insects, the employment of which is constantly utilized by them, and the techniques of which are immediately transferable to the nematode problem,

Be it resolved, that the responsibility of agricultural nematode study and control is properly a function of entomology and/or economic zoology. Seconded H. M. Harris.

There was spirited discussion by a number of members from the floor. A voice vote was taken which was inconclusive. President Porter then called for a show of hands. The recorded vote was 77 for, 61 against. Carried.

RESOLUTION 6. Whereas, commendable action has been taken in establishing tolerances under the provisions of the Miller Amendment for insecticide residues existing on many fruits and vegetables, but

Whereas, tolerances have not been established in the case of milk and meat products, and

Whereas, there is considerable demand by interested people to remedy this deficiency,

Be it resolved, that the Society urge prompt action on the part of both Federal government and industry, toward establishing insecticide residue tolerances in milk and meat products.

Seconded O. I. Snapp. Carried.

RESOLUTION 7. Whereas, there is a serious lack of students entering the field of entomology, and

Whereas, there appears to be a lack of information available to high school students concerning the nature of, and the career opportunities in entomology,

Be it resolved, that entomologists and entomology departments make every effort, and avail themselves of every opportunity to stimulate interest in entomology as a career.

Seconded Neely Turner. Carried.

8. President Porter spoke concerning his appreciation to all those who had helped during his year as president. He commented upon the excellent planning of the *Local Arrangements Committee* which resulted in the success of the New York meeting. President Porter also commented upon the President's Luncheon, and upon the well received talk, *A Look at the Orient*, given by Dr. Firman E. Bear, of Rutgers University at the Luncheon.

9. The chair requested Past-President Decker to escort the new President, H. M. Armitage, to the rostrum where he was introduced and accepted the gavel from the retiring President, B. A. Porter.

10. President Armitage took the chair and spoke briefly upon plans for the future of the Society. He introduced the new members of the Governing Board, M. P. Jones for Section E, K. L. Knight for Section D, and O. I. Snapp for the Cotton States Branch. E. H. Littooy for the Pacific Branch was not present.

11. President Armitage called upon Past-Presidents C. P. Clausen and E. G. Linsley to escort President-Elect R. L. Metcalf to the rostrum where he was introduced.

12. There being no further business the meeting adjourned at 5:00 p.m.

R. H. NELSON,  
Executive Secretary

## Actions of the 1957 Governing Board

Initial Meeting December 29, 1956

Following adjournment of the Final Business Session, President Armitage called a meeting of the 1957 Governing Board for 7:30 p.m. December 29.

1. President Armitage announced the appointment of a *Committee on Publications* to give overall consideration to publication rules and policies of the Society. The members appointed were K. L. Knight, P. W. Oman and R. L. Metcalf, *Chairman*.

2. Previous Board action requiring membership for authors in order to obtain free publication in the *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA* or the *JOURNAL OF ECONOMIC ENTOMOLOGY* was continued unchanged.

3. The *Memorial Lecture Committee* appointed in 1956 by President Porter was continued by President Armitage. The members of this committee are C. C. Compton, C. K. Dorsey, E. G. Linsley, C. B. Philip and W. P. Hayes, *Chairman*.

4. The Board accepted the report of the 1956 *Editorial Board of the Annals of the Entomological Society of America* for publication in the *BULLETIN*.

5. The registration fees for the 1957 meeting are to remain as set for 1956 and are as follows: visitors \$7.50; members \$5.00; student members \$1.00; invitation non-member speakers and members' wives—complimentary.

R. H. NELSON,  
Executive Secretary

## AUTOGRAPHA O O

(Continued from inside front cover)

come at any Branch meeting, the 1957 dates of which were announced in the December 1956 *BULLETIN*, with additional dates in this issue.

**BRANCH MEETINGS.** Successful meetings were held by the Cotton States Branch in Birmingham, Alabama on February 4-6, 1957 and by the Southwestern Branch at San Antonio, Texas on March 10-12, 1957. The 1958 meeting of the Cotton States Branch is to be moved forward and held in conjunction with the National Meeting at Memphis, Tennessee on December 2-5, 1957.

**OFFICERS.** This issue of the *BULLETIN* contains lists of officers of the Society, its Sections and Branches as well as Society Representatives to other organizations. Complete membership of all Standing Committees will be noted. Please see the *Program Committee* and remember to submit, prior to September 1, 1957, titles and abstracts of papers to be given at the Annual Meeting in Memphis, December 2-5, 1957.

## NECROLOGY

BRYSON, H. R. 64. Associate Professor of Entomology, Kansas State College. At Manhattan, Kansas, December 3, 1956.

DOYLE, E. T. 64. Entomologist with Diamond Black Leaf Co. At Burlingame, California, December 20, 1956.

HARRISON, E. C. JR. 50. Plant Quarantine Inspector, U.S.D.A. At Guatay, California, February 9, 1957.



## REPORT OF THE AUDITOR

Dr. B. A. Porter, President  
Entomological Society of America  
1530 P Street, N. W.  
Washington 5, D. C.

Dear Dr. Porter:

In accordance with the recent request of Mr. R. H. Nelson, Executive Secretary of the Entomological Society of America, I have made an examination of the financial affairs of your Society for the year beginning November 1, 1955 and ending October 31, 1956. As a result of my examination, there are attached the following exhibits:

Exhibit "A" General Fund—Statement of Receipts and Disbursements for the year beginning November 1, 1955 and ending October 31, 1956.

Exhibit "B" Permanent Fund—Statement of Receipts and Disbursements for the year beginning November 1, 1955 and ending October 31, 1956.

Exhibit "C" Entoma—Statement of Receipts and Disbursements for the period beginning November 1, 1955 and ending October 29, 1956.

Exhibit "D" Thomas Say Foundation—Statement of Receipts and Disbursements for the year beginning November 1, 1955 and ending October 31, 1956.

Branch funds have not been accounted for in this report. There are at present five branches. Each branch has its own bank account, and has the authority to make expenditures for its activities and to receive registration fees for its meetings. These branches are not required to account to the Entomological Society of America for their receipts and expenditures.

In my opinion, subject to the above comments, the accompanying statements fairly reflect the recorded cash receipts and authorized disbursements made for the benefit of the Entomological Society of America for the period beginning November 1, 1955, and ending October 31, 1956, on a basis consistent with that of previous periods.

Very truly yours,

JOHN A. HERL,  
Certified Public Accountant

Exhibit "A"

### ENTOMOLOGICAL SOCIETY OF AMERICA

#### GENERAL FUND

#### STATEMENT OF RECEIPTS AND DISBURSEMENTS

For the Year Ended October 31, 1956

BALANCE NOVEMBER 1, 1955..... \$14,915.57

#### RECEIPTS

Membership Dues—Previous Years.....	\$ 1,273.00
1956.....	4,998.00
Future Years.....	164.00
Journal Subscriptions—Previous Years.....	802.97
1956.....	16,530.92
Future Years.....	491.50
Non-Member Journal Subscriptions—	
Previous Years.....	726.42
1956.....	17,243.19
Future Years.....	2,284.07
Annals Subscriptions—Previous Years.....	338.50
1956.....	5,899.97
Future Years.....	167.00
Non-Member Annals Subscriptions—	
Previous Years.....	71.23
1956.....	4,044.95
Future Years.....	714.20
Bulletin Sales—Members.....	7,747.39
Non-Members.....	1,104.94
Sales of Indices—Previous Numbers.....	2,520.19
No. 13.....	1,059.94
No. 14.....	622.69

Sales of Annual Review.....	6,163.25
Reprints—Journal.....	5,363.05
Annals.....	1,908.74
Paid Papers—Journal.....	1,439.09
Annals.....	97.25
Sales of Back Issues—Journal.....	2,259.20
Annals.....	1,353.99
Advertising—Journal.....	4,793.64
Annals.....	390.12
Sustaining Associates—1956.....	2,500.00
Future Years.....	100.00
Overpayments—Members.....	165.42
Non-Members.....	101.70
Insect Facts.....	73.50
Thomas Say Foundation.....	306.73
Programs.....	34.00
Interest—Province of Ontario Bonds.....	100.56
Brochure No. 1.....	922.19
Miscellaneous Receipts.....	55.89
Balance in Petty Cash Fund,	
November 1, 1955.....	34.42
Postage.....	70.26
Entoma.....	1,003.96
Reimbursement of Expenses paid	
for Eastern Branch.....	69.94
Sale of Mimeograph Machine.....	22.50
Registration Fees.....	1,721.25
Buffet, Smoker and Banquet Fund.....	241.20
Travel and Meeting Expense Reimbursed.....	200.00
Payroll Taxes Withheld.....	3,867.98

TOTAL RECEIPTS..... \$104,164.00

TOTAL CASH TO BE ACCOUNTED FOR..... \$119,079.57

NOTE: The comments form an integral part of this statement.

#### DISBURSEMENTS

Journal—Printing and Mailing.....	\$24,268.51
Engraving.....	1,178.83
Reprints.....	3,196.02
Annals—Printing and Mailing.....	17,948.08
Engraving.....	699.87
Reprints.....	1,896.25
Index No. 13—Costs.....	1,727.00
Index No. 14—Costs.....	2,813.80
Postage Expense—Indices.....	13.61
Binding Costs—Index No. 10.....	95.00
Annual Review Costs.....	4,825.55
Cost of Reprinting Brochure No. 1.....	305.00
Bulletin Expense.....	5,628.07
Back Issue Costs.....	887.81
Addressograph Service.....	124.21
Office Supplies and Expense.....	1,309.12
Postage—Miscellaneous.....	1,540.94
Miscellaneous Printing.....	2,586.60
Salaries and Wages.....	24,865.52
Mailing Permits.....	60.00
Telephone and Telegraph.....	137.54
Surety Bond Premium.....	9.48
Insurance.....	49.91
Accounting Fees.....	343.50
Bank Charges.....	9.60
Returned Checks.....	124.01
Subscriptions.....	210.00
Rental of Safe Deposit Box.....	5.50
Refunds—Membership Dues.....	9.00
Refunds—Subscriptions.....	105.15
Purchases—	
Office Furniture and Equipment.....	2,577.99
Payroll Taxes—Employer's Portion.....	386.67
Payroll Taxes—Employee's Portion.....	3,867.98
Reimbursement to Thomas Say Foundation for the portion of its funds which were used for General Expenditures.....	292.13
Transfer of Permanent Fund Receipts to Savings Account.....	100.56
Entoma.....	3.00
Contribution to the 10th International Congress of Entomology.....	1,000.00
Eastern Branch Expense (Reimbursed to General Fund).....	49.20
Cincinnati Meeting Expense.....	589.33
President's Expense (Cincinnati Meeting).....	75.70
President's Expense (Eastern Branch Meeting).....	127.79
Installment paid on Retirement Annuity for the Executive Secretary.....	500.00
Miscellaneous Refunds.....	16.00

TOTAL DISBURSEMENTS..... 106,559.83

BALANCE OCTOBER 31, 1956..... \$ 12,519.74

#### ABOVE BALANCE ACCOUNTED FOR AS FOLLOWS:

Cash in National Bank of Washington.....	\$12,501.65
Balance in Petty Cash Fund.....	18.09

TOTAL..... \$ 12,519.74

NOTE: The comments form an integral part of this statement.

## Exhibit "B"

**ENTOMOLOGICAL SOCIETY OF AMERICA  
PERMANENT FUND  
STATEMENT OF RECEIPTS  
AND DISBURSEMENTS**

**For the Year Ended October 31, 1956**

**BALANCE NOVEMBER 1, 1955** ..... \$ 28,112.46

**RECEIPTS**

Interest on Series G, U. S. Treasury Bonds ..... \$ 125.00  
Interest on Province of Ontario Bonds ..... 109.56  
Interest on Savings Account—First Federal Savings and Loan Association ..... 336.56  
Interest on Savings Account—Perpetual Building Association ..... 185.38  
Increment in Redemption Value of Series F, U. S. Treasury Bonds ..... 169.00

**TOTAL RECEIPTS** ..... \$ 916.50

**BALANCE OCTOBER 31, 1956** ..... \$ 29,028.96

**ABOVE BALANCE ACCOUNTED FOR AS FOLLOWS:**

Face Value	Securities	Book Value
\$2,000.00	Province of Ontario, 5% Debenture Bonds of 1959—Cost	\$2,000.00
5,000.00	U.S. Treasury Bonds, Series G—Cost	5,000.00
6,500.00	U.S. Treasury Bonds, Series F	5,512.00
<b>\$13,500.00</b>		<b>12,512.00</b>

**CASH**

First Federal Savings and Loan Association ..... 9,868.97  
Perpetual Building and Loan Association ..... 6,647.99

**TOTAL CASH** ..... \$ 16,516.96

**TOTAL SECURITIES AND CASH** ..... \$ 29,028.96

NOTE: The comments form an integral part of this statement.

## Exhibit "C"

**ENTOMOLOGICAL SOCIETY OF AMERICA  
ENTOMA  
STATEMENT OF RECEIPTS  
AND DISBURSEMENTS**

**For the Year Ended October 31, 1956**

**EDITION 10**

**BALANCE NOVEMBER 1, 1955** ..... \$ 266.55

**RECEIPTS**

Book Sales ..... \$ 238.68  
Less: Maryland Sales Tax ..... .04  
Refunds ..... 4.50 4.54

**NET RECEIPTS** ..... \$ 234.14

**TOTAL TO BE ACCOUNTED FOR** ..... 500.69

**DISBURSEMENTS**

Commission ..... 235.58  
Secretarial Service ..... 29.65  
Postage ..... 26.00  
Returned Checks ..... 1.50  
Transfer of Balance in Account to the Entomological Society of America ..... 206.96

**TOTAL DISBURSEMENTS** ..... \$ 500.69

**BALANCE OCTOBER 31, 1956** ..... NONE

**EDITION 11**

**BALANCE NOVEMBER 1, 1955** ..... \$ 526.07

**RECEIPTS**

Book Sales ..... \$2,019.70  
Advertising and Listing ..... 5,567.89

**TOTAL RECEIPTS** ..... 7,587.59

**TOTAL TO BE ACCOUNTED FOR** ..... \$ 8,113.66

**DISBURSEMENTS**

Stationery and Office Supplies ..... \$ 112.77  
Postage and Mailing Expense ..... 977.36  
Promotional Supplies ..... 90.88  
Telegrams ..... 3.52  
Bank Charges ..... 9.37  
Editorial and Secretarial Work ..... 790.00  
Printing ..... 5,129.50  
Transfer of Funds to Entomological Society of America ..... 750.00

**TOTAL DISBURSEMENTS** ..... 7,863.40

**BANK BALANCE OCTOBER 29, 1956** ..... 250.26

**TOTAL CASH ACCOUNTED FOR** ..... \$ 8,113.66

The above statement was prepared from information furnished without independent verification by me because of geographical distribution of original records. Therefore, no opinion can be expressed either as to its accuracy or to the consistency with which generally accepted accounting principles were applied.

NOTE: The comments form an integral part of this statement.

N.B. \$500.00 of the \$750.00 shown as transferred to the Society under Edition 11 is in payment of a like amount advanced by the Society in 1951. Governing Board action. R.H.N.

## Exhibit "D"

**ENTOMOLOGICAL SOCIETY OF AMERICA  
THOMAS SAY FOUNDATION  
STATEMENT OF RECEIPTS  
AND DISBURSEMENTS**

**For the Year Ended October 31, 1956**

**BALANCE NOVEMBER 1, 1955** ..... \$ 1,110.54

**RECEIPTS**

Interest on Savings Account ..... \$ 42.46  
Sale of Books ..... 1,258.83

**TOTAL RECEIPTS** ..... 1,296.29

**TOTAL TO BE ACCOUNTED FOR** ..... 2,406.83

**DISBURSEMENTS**

Postage ..... 51.49  
Binding Volume 2 ..... 179.00

**TOTAL DISBURSEMENTS** ..... 230.49

**BALANCE OCTOBER 31, 1956** ..... \$ 2,176.34

**ABOVE BALANCE ACCOUNTED FOR AS FOLLOWS:**

Savings Account with the Guardian Federal Savings Association ..... \$ 2,176.34

NOTE: The comments form an integral part of this statement.

**Safety Folder**

United-Heckathorn, 600 South Fourth Street, Richmond, California, is now offering, free of charge, a revised edition of their wallet sized safety folder including a revised list of antidotes for all the agricultural chemicals, which contain antidotes for the newer agricultural insecticides such as, Phosdrin Thimet and Guthion. A new section concerning disposal of empty containers is included together with a list of the latest approved safety equipment for handling of agricultural chemicals.

**E. H. Fisher Injured**

Dr. E. H. Fisher, Editor of ENTOMA, was injured in a hunting accident on December 23rd last. He was struck in the eye by a shot gun pellet and our report indicates that he will lose the sight of the eye. We very much regret such tidings. All members will be pleased to know that Dr. Fisher is continuing as Editor of ENTOMA, Edition 12 being planned for publication this year.

## REPORTS OF STANDING COMMITTEES FOR 1956

### REPORT OF THE COMMITTEE ON INSECT SURVEYS

The *Committee on Insect Surveys* met in Washington, D. C., on May 9-10, 1956 on invitation of the Plant Pest Control Branch. All members were present except Mr. K. D. Quarterman and Mr. R. G. Richmond. Ex-officio members, Dr. Paul Oman of the Insect Identification and Parasite Introduction Section and Kelvin Dorward, Economic Insect Survey Section, were present. Three field representatives of the Economic Insect Survey Section, J. I. Cowger, Leo G. K. Iverson, and R. B. Thraillkill, were also present.

A conflict with several meetings and public hearings prevented several interested parties from regular attendance at the meeting. Mr. Emory Burgess, Chief, Plant Pest Control Branch, discussed the survey work and the branch's interest in surveys and expressed his appreciation for the assistance rendered by the Survey Committee in recent years.

Reports of the Survey Committee's four previous meetings were read and discussed to orient members and delimit responsibility. Recommendation of the 1955 Committee Report were considered in detail. The Director, Crops Regulatory Programs, ARS, USDA, submitted a report on items 4 a, b, and c, of last year's report. The Economic Insect Survey Section reported on items a-g, and items 1-3.

Foreign pests, their possible introduction and ways and means for preventing their introduction or detecting them if accidentally introduced were considered. The problems involved in making insect surveys in foreign countries were fully discussed. It was concluded that important special surveys could always be accomplished without too much difficulty and the accumulation of information through existing channels, aided by Americans now on various types of foreign assignments, would suffice. Blanket surveys to accumulate data in foreign countries would be difficult to accomplish, very costly and not likely to supply the answer to emergency problems. Species that become pests when introduced into new areas seldom cause economic damage in country of origin thus making it difficult to evaluate their potential. Records show some important foreign economic pests were not serious pests when introduced into the United States. Information of great value stems from interceptions at United States ports of entry and it should be made available to the public, a policy presently being followed by the Economic Insect Survey Section through cooperation with the Plant Quarantine Branch.

A revision of *Pierce's Manual* was discussed but it is believed that the cost of revising this publication would not be warranted in view of its limited use.

The *Cooperative Economic Insect Report* was discussed and proposals made for improving the subject matter. Discussion indicated a need for color plates of important economic insects, both domestic and foreign. The high cost of such plates practically prohibits their use. In recent years industry has provided some color plates for general distribution. There is need to improve presentation of data on maps through the use of related symbols and explanations. Extensive discussions related to insect information received from State Clearing houses and methods for improving quality and quantity of insect notes.

Cooperative agreements providing for state-federal financing of a survey entomologist are now (May, 1956) in force in 26 states, as follows: Arizona, Arkansas, California, Florida, Georgia, Idaho, Kansas, Illinois, Louisiana, Maryland, Minnesota,

Missouri, Nebraska, Nevada, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Dakota, Texas, Utah, Virginia, Washington, Wisconsin and Wyoming. In addition agreements are being processed for Colorado and West Virginia. Alabama, Michigan, New Mexico and South Carolina are considering establishing survey programs.\*

The need for research to provide new and improved survey methods was emphasized and all workers are hopeful that some productive efforts will be forthcoming at the state and federal level.

Dr. Paul Oman reported favorably on the developments in insect identification. Since 1955 preparators have become available and several taxonomists have been added to the national staff. There is need for additional research and study to develop a standardized coding system for insect records. There is also a definite need for guides or field manuals to be used by field investigators as working tools to recognize economic pests among important groups of insects. The standards of insect preparation, before a submission to the identification section, should be improved. Special surveys such as khapra beetle and area-wide problems such as spotted alfalfa aphid, place extra burdens on the taxonomists. Of great importance is the specific need for better documentation of all stages of development of economic insects. Experiment stations and entomological workers generally could render a distinct service by rearing insects to provide the taxonomists with authentic specimens from all stages in the life cycle. The taxonomy of immature forms is a fertile field for study.

The committee discussed the importance and future of survey assignments for inexperienced entomologists. Permanency of position and salary rates are key items that need to be improved. The society should consider employment aids to bring qualified men in contact with prospective employers. It should encourage undergraduate students to consider assignments involving survey operations. There is great need for continual strengthening of insect surveys as evidenced by state, federal and commercial interest. There is widespread interest and need for uniform area or regional surveys to crystalize information on the insects attacking important agricultural crops. Voluntary efforts should be coordinated by means of standard survey methods even though there may be some deviation in interpreting the results in certain areas.

Demand for reliable insect loss data becomes more evident each day. It affects control procedures, manufacturing and distribution of insecticides and particularly requests for tax funds to support all phases of entomological endeavor; the United States should take the lead in research to develop standard procedures. Insect loss data should be expressed in quantitative terms: per cent or crop units such as bushels, tons, etc. Average and yield figures gathered by USDA, Bureau of Agricultural Economics are valuable in projecting insect loss data.

Dr. C. H. Hoffman of the Entomology Research Branch discussed the society's proposal that more attention be devoted to research to develop new and improved insect surveys and enlist the cooperation of state and federal experiment stations to establish projects.

### Committee Proposals—1956 Meeting

#### *The Committee recommends that:*

1. The Society accept the report of and commend the Director, Crops Regulatory Program, Agricul-

\*Alabama, Colorado, and West Virginia have since signed agreements (November 1956)



tural Research Service and the Economic Insect Survey Section of the Plant Pest Control Branch for the progressive action taken on the 1955 Committee recommendations (see appendices). It is further suggested that continued effort be made to secure action on the recommendations where advisable; that the section be further commended on the numerous improvements incorporated in the Cooperative Economic Insect Report, some resulting from committee suggestions, such as the inclusion of weekly maps showing the distribution and density of major migratory economic insect pests; that the society use every facility at its disposal to encourage its members and all entomologists to increase their support of the entire survey program.

2. The society again recommends that more attention be given to developing insect survey methods and means of correlating survey findings with damage, both to serve as aids in forecasting population trends to assist in timing control operations. Joint state-federal participation is proposed in this effort and it is recommended that the Chief of the Entomology Research Branch, Agricultural Research Service, U.S. Department of Agriculture take an active part by participating and securing state participation to obtain the necessary information.

3. Inasmuch as numerous states have installed or are considering the installation of card systems (IBM, Kardex, etc.) for recording and preserving insect data, thus creating an urgent need for a standard coding procedure for all phases of biological sciences, particularly entomology, the society suggests that emphasis be placed on the need to make research funds available to develop such standards and furthermore urge the states installing card systems to exchange views in an effort to establish similar systems.

4. The society recognize the urgent need for documented insect material as a logical basis for working out the taxonomy of immature stages of insects; and urge all entomologists, and especially experiment station workers, to rear important economic insects, record and retain properly associated specimens from each stage of development and furnish lots of material to the national insect collection.

5. That the society recommend that the states give their continued support to the survey work by continuing and increasing their support of the voluntary and jointly financed cooperative agreement phases of the program. The Economic Insect Survey Section of the Plant Pest Control Branch will be glad to furnish information on all aspects of the insect survey operation.

6. The society proposes that the Economic Insect Survey Section prepare an outline for the guidance of cooperating entomologists who prepare the annual state insect summaries for the Cooperative Economic Insect Report to encourage a uniformity in the annual summaries and to place needed emphasis on quantitative information of insect losses on important crops. In carrying out the completion of such summaries, acreage, yield, per cent damage, and resulting losses should be included, together with notation of preventive control measures taken and a statement relating to estimated savings which resulted from that effort.

7. The society recommend that when the Survey Manual is reissued in revised form by the Economic Insect Survey Section, it contain a bibliography of all available information pertaining to survey techniques or methods that outline procedures for securing quantitative information on insect populations and crop damage.

8. The society express its appreciation to Mr. Leo G. K. Iverson for his effort and follow-up report on the preparation of a statistical table to be used as a guide in insect survey operations, to Mr. George

Thomas, Missouri Survey Entomologist, who has continued his study to develop a field method of estimating crop losses caused by insects, to Loyd Anderson, University of Nebraska, and Howard B. Petty, University of Illinois for their efforts toward working out figures on quantitative losses caused by insects in their states, and to Dr. James A. Beal, of the Forest Service, for the excellent forest pest summary which was submitted to the Economic Insect Survey Section, covering forest insect conditions and control measures for 1955.

## APPENDIX I

### Response of Director, Crops Regulatory Programs, ARS, USDA to 1955 Committee Recommendations (1955 Committee Report in BULLETIN OF THE ESA, Vol. 2, No. 1, March 1956):

In reply to the committee's inquiry, the Director, Crops Regulatory Programs, Agricultural Research Service, United States Department of Agriculture, commented as follows on items 4 a, b, and c of last year's report:

"Item a" which refers to a revision of W. D. Pierce's "A Manual of Dangerous Insects likely to be introduced into the United States through importations," was discussed at considerable length. This manual has been used extensively, particularly in the regulatory field, and the desirability of a revision is well recognized but the possibility of such an accomplishment at this time seems questionable. Within recent years the Plant Quarantine Branch undertook to bring together information on foreign insects, by crops attacked, for their own use. One man was employed for more than a year and during this period completed work only on insects relating to crucifers. This did not include the time spent by specialists and other workers that were called upon to check records and information. There was no attempt to prepare drawings or color plates which would be necessary in this type of publication.

"It was the opinion of the group that it would require the employment or assignment of personnel on a full-time basis to properly prepare a revised manual. The minimum requirements would be two men for five years to accumulate the material and translate foreign literature. The estimated cost of this undertaking was placed at \$100,000. Funds now available to the Crops Regulatory Programs could not be devoted to a program of this magnitude. However, if there is any possibility that, through cooperation of various entomological agencies, funds could be made available for the suggested revision of Pierce's Manual. We wish to assure you that our personnel will be glad to contribute.

"The question of freer movement (Item 'B') of United States entomologists abroad involves not only our State Department but the language, diplomatic and travel barriers in foreign countries. To operate under our present system, each proposed trip would have to be considered separately and be scheduled for a specific purpose. Mr. Edson J. Hambleton advised that several trips have been worked out very satisfactorily, when specific problems were to be studied, with the aid of United States entomologists now stationed in various foreign countries. They assisted California entomologists studying spotted alfalfa aphid parasites as well as Mr. George B. Vogt, who is now on a study of insects which may be destructive to halogeton. Mr. E. P. Reagan's Branch (Plant Quarantine Branch) has been invited, by several Central American countries, to cooperate in a Mediterranean fruit fly survey in that area. It was the general opinion that nothing could be accomplished unless an invitation was forthcoming from the country in which we desired to make a survey. This situation might be compared with a definite desire on the

part of the United States officials to limit internal surveys by foreigners in this country. The conferees also pointed out that the department has already completed about as much survey work as funds and conditions permit and nearly all the information obtained has been made available to the public. We wish to assure the Society that our branches will be glad to cooperate, insofar as possible, with any states or organizations wishing to make surveys in a foreign country.

"It is believed that Item 'c' is so closely related to Item 'b' that the Economic Insect Survey Section may in part be attaining the objective at the present time. They have initiated, in cooperation with Mr. Edson J. Hambleton's group, a program to obtain reports on insect conditions from United States' Entomologists now stationed in a number of foreign countries. Several of their reports have already appeared in the weekly report. The persons stationed in the various countries should be able to furnish a very good picture of the insect conditions throughout the year. Such a report might actually reveal more information than a short survey by a person not thoroughly familiar with the local conditions."

## APPENDIX II

In answer to the committee's inquiry directed to the Economic Insect Survey Section, Plant Pest Control Branch, the following comments were offered in reply to items 5 a-g and items 1-3:

(a) "The Economic Insect Survey Section has completed arrangements with Mr. Edson J. Hambleton, in charge of foreign technical programs in the branch and working in cooperation with ICA, and other foreign programs to have workers in the Middle East and North African countries submit reports on insect conditions as they exist in the various countries being worked. The response has been favorable and some summary reports have been published. The section also subscribes to the Review of Applied Entomology which is considered one of the better sources of information on entomological work in foreign countries.

(b) "The *Cooperative Economic Insect Report* has a section on beneficial insects and is more than glad to report on such insects as reports are received. However, the Section has discouraged the submission of notes of a controversial nature. We would like to encourage more reports on the use and abundance of beneficial insects.

(c) "With respect to a check list of economic insects, Miss Helen Sollers of this Section has continued the preparation of a rather comprehensive work which was initiated by the late J. A. Hyslop which would very likely satisfy the request of the committee. However, it has been estimated that the cost of publishing the two volumes of this work would possibly exceed \$10,000. Perhaps the committee may wish to approach the author with the view in mind that the Society underwrite the work.

(d) "In an effort to secure current information, we have repeatedly requested all cooperators to submit information on pests of stored agricultural products. The response has not been entirely satisfactory. However, if this question refers to a check list then its preparation would very likely require an extended study to produce one acceptable for release.

(e) "The Section has encouraged Entomology Departments to acquaint their students with survey methods, field survey practices and has actually financed the participation of some individuals in summer survey work in addition to publishing a survey manual. We hope to add to the Section field forces in order to train personnel to fill these positions when they arise.

(f) "The *Cooperative Economic Insect Report* recently initiated the use of a series of maps to show weekly finds of the armyworm. As material is received later in the season, additional maps will be used for other migratory insects of economic importance.

(g) "The Economic Insect Survey Section has encouraged all cooperating entomologists to be on the alert for insects new to this country but has not attempted to determine, if such determination is possible, that any new finds were introduced as a phase of biological warfare.

(1) "Rather than publishing a list of insects known to cause economic problems in their native or other foreign countries, the Section has cooperated closely with the Plant Quarantine Branch which prepares, almost weekly information on interceptions which that Branch has made at various ports of entry in this country. The Plant Quarantine Branch, in addition to furnishing the name of the insect, also provides such information as is available on the habits and distribution of the pest.

(2) "The Economic Insect Survey Section has alerted its field workers and cooperators to be on the lookout for any new pests but has not attempted to train these workers to differentiate between insects which might be introduced in normal trade channels and those introduced for biological warfare purposes during peace time.

(3) "The Economic Insect Survey Section is encouraging all agricultural and allied workers to cooperate in submitting information on insects which they observe. Recent correspondence has been exchanged between this Section and the Bureau of Medicine and Surgery, Department of the Navy, in which that group have pledged their full cooperation. In some states the survey entomologists are actively engaged in organizing schooling to bring people interested in forest preservation in closer contact with forest insects and their methods of recognition. The State of Arkansas has done a remarkable job in this connection, schools have been held in Virginia and are being organized in Georgia and Louisiana. We are hoping that other such schools will become a reality in the future."

Respectfully submitted,

C. A. Bower  
K. D. Quarterman  
D. W. Hamilton  
W. E. McCauley  
J. A. Beal

R. W. Every  
R. G. Richmond  
Kelvin Dorward, Ex officio  
P. W. Oman, Ex officio  
C. G. Lincoln, Chairman

## REPORT OF THE PROGRAM COMMITTEE

The program of the Fourth Annual Meeting of the Entomological Society of America reflects the activities of the *Program Committee* and may be considered the principal report of this Committee. In summary, the program presented at New York during the period December 27-30 included the following scientific contributions:

General programs—1 symposium, 1 feature address.

Special Section and Subsection programs—7 symposia or symposia type programs of one-half day each, 1 one-half day tour, 5 invitational papers, and 175 submitted papers.

In addition to the unusually extensive technical program, there were a number of innovations. The traditional evening banquet was omitted in favor of the President's Luncheon. The final business meeting was scheduled for the next-to-last day, rather than the last day of the meetings, in order to assure a quorum for transaction of business. A program supplement was prepared and distributed

from the registration desk in order to inform members of additions and corrections in the program distributed in the September BULLETIN. A synopsis of the program was printed in chart form for ready reference to the activities by Section and by day. These changes were made on the assumption that they constituted an improvement in programming, or because they were necessary to make the program conform to a Thursday through Sunday meeting schedule.

Methods followed in developing the program were essentially as outlined for the 1955 program. All papers received through September 17, the day the typed program was turned over to the Executive Secretary, were included in the printed program. Inasmuch as the program was distributed well in advance of the meeting, it was not considered necessary to notify participants as to the time papers were scheduled for presentation.

Recommendations. Some of the recommendations made by the 1955 Program Committee have been adopted, and others will be materially influenced by proposals made by the Special Committee on Revision of the Constitution. Pending consideration of recommendations concerning revision of the Constitution and By-Laws, the Program Committee makes no further recommendations.

Respectfully submitted,  
R. C. Bushland  
E. N. Woodbury  
P. W. Oman, Chairman

#### REPORT OF THE COMMITTEE ON INSECTICIDE TERMINOLOGY

Common names to designate insecticidal chemicals continue to be of interest to members of the Society and have again been given attention by the Committee during the year. The list of names published in the February 1955 and 1956 issues of the JOURNAL OF ECONOMIC ENTOMOLOGY is being brought up to date. It is hoped to have the revision completed in time for publication in the February 1957 issue of the JOURNAL.

At the request of the Executive Secretary, the Committee has reviewed a list of commercial and experimental insecticides submitted to the Society for publication in the BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA. Insecticides, including acaricides, repellents, fumigants, and synergists are tabulated by general chemical structures. The common names and the manufacturers' designations, code letters, code numbers, insects against which the chemical is effective, and the name of the manufacturers of the insecticides are indexed. The list is intended as a companion to the list of common names of insects published in the December 1955 issue of the BULLETIN. The Committee recommends its publication by the Society.

The 1953 Report of the Committee recommended that with granulated insecticides, the term "granulated" rather than "granular" be used. In the last three years insecticides of this type have come into more general use and many are now on the market as "granular" materials or "granules." It was not intended to ban the use of other terms. Although "granulated" is the preferred term for the Society publication, the terms "granular" and "granules" should be permitted.

The Committee has also been requested to consider whether the term "nemacide," "nematocide," or "nematicide," shall be used in JOURNAL publications. An expert nematologist informs the Committee that "nematocide" has appeared in unabridged dictionaries for about 50 years. Since "nematocide" is slightly preferable for philological reasons, and is

established, the Committee recommends its use in the publications of the Society.

Respectfully submitted,

S. D. Beck  
Paul A. Dahm  
Allen B. Lemmon  
C. C. Roan  
Carroll N. Smith  
H. L. Haller, Chairman

#### REPORT OF THE COMMITTEE ON INSECTICIDE REFERENCE STANDARDS

Since the organization of the Committee on Insecticide Reference Standards six standards (DDT, chlordane, toxaphene, parathion, methoxychlor and lindane) have been established. Since then more new insecticides have been widely used. In 1956 the major project of this Committee was to contact manufacturers and to select new standards, so that more standards will be available for distribution. The criteria for selecting established insecticides as reference standards are as follows: (1) The new standards should be in large scale production and should be uniform in quality; (2) the new standards should have physical and chemical data, especially the percentage of active ingredients; and (3) the new standards should be reproducible by manufacturers. On this basis, the following new standards have been proposed and samples have been secured from major manufacturers.

Technical aldrin	Technical Dipterex
Technical allethrin	Technical endrin
Technical Aramite	Technical heptachlor
pp'-DDT	
Technical demeton	Technical malathion
Technical Diazinon	Technical Ovotran
Technical dieldrin	Technical Perthane
Technical Strobane	Technical schradan

To further the promotion of the use of insecticide reference standards the Committee has arranged an exhibition at the Annual ESA Meeting for both old and new standards. It is the hope of this Committee that through the addition of new standards, and better specifications on samples, insecticide reference standards will be more extensively used in entomological experiments.

We also anticipate the addition of more standards and the inclusion of pure samples, when the expansion of the reference standard program becomes necessary.

Respectfully submitted,  
F. W. Fisk  
E. E. Ivy  
G. F. Ludvik  
Y. P. Sun, Chairman

#### REPORT OF THE COMMITTEE ON COMMON NAMES OF INSECTS

The activities of the Committee during the year 1956 may be summarized as follows:

1. Publication of a new "List of Common Names of Insects Approved by the Entomological Society of America." This list was in the December 1955 number of the BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA but actually not printed until January of this year. It is the first such list published by the reorganized Society and supersedes that published by C. F. W. Muesebeck in 1950 under the auspices of the Association of Economic Entomologists. In accordance with previous recommendations from the Society a section in the new list treats common names for families and higher categories. In addition, each common name was provided with a coded indication of its order and family assignment. Approximately 5500 copies of the list have been distributed.



2. Thirty-eight names tentatively approved by the Committee were published in the December 1955 number of the Bulletin. Members of the Society raised objections to two proposals and the remaining 36 are now added to the Approved List.

3. The Committee is currently voting on 69 proposed additions and 3 changes.

These about equal the number of new proposals received during the year but as there were approximately 100 proposals on hand at the beginning of the year, the backlog remains about the same.

The Committee would like to express its appreciation for the active interest and assistance of the Committee on Common Names of the Entomological Society of Canada and of the Committee on Common Names of the Western Forest Insect Workers Conference.

Respectfully submitted,

R. H. Painter  
H. H. Schwardt  
R. F. Smith  
D. E. Hardy

L. C. Kuitert  
J. L. Laffoon  
A. V. Mitchener  
D. E. Parker

Reece I. Sailer, Chairman

#### REPORT OF THE COMMITTEE ON MEMBERSHIP

Personal contact of new prospective members was the theme of the Committee this year. Contacts were made by numerous ESA members within the states and metropolitan or entomological centers, coordinated and assisted by the national and/or regional committees of the respective region. The efforts of A. C. Miller and his Committee in the Eastern Branch and of H. H. Keifer and his Committee in the Pacific Branch have been especially noticeable, although many have helped them and there are doubtlessly others who gave outstanding assistance, of whom we are not aware. Administrative heads

of agencies of regional and national scope were also helpful by pointing out to their personnel the advantages of membership.

The Executive Secretary's office was very helpful in supplying a current list of names and addresses of all ESA members within each state.

During the year 568 applications for membership were received and submitted to the Society for consideration.

Respectfully submitted,

D. L. Collins  
P. A. Glick  
George D. Jones  
A. F. Kirkpatrick  
Randall Latta

Herbert Knutson, Chairman

#### REPORT OF THE COMMITTEE ON ENTOMOLOGICAL NOMENCLATURE

No business was conducted by this Committee during the year. But it should be mentioned that several matters have been placed on the agenda for attention next year. Also it is expected that a draft of a new International Code on Zoological Nomenclature will be available for study and criticism in 1957, and this should receive active attention of the Committee. It is anticipated that the coming year or two should be extremely busy and important ones, thus amply justifying the importance and continuance of this Committee on Entomological Nomenclature.

Respectfully submitted,

C. W. Sabrosky  
R. L. Usinger  
G. S. Walley  
J. L. Gressitt

C. D. Michener  
R. M. Bohart  
H. E. Evans  
G. C. Steyskal

J. T. Medler, Chairman

### REPORTS OF EDITORIAL BOARDS FOR 1956

#### REPORT OF THE EDITORIAL BOARD ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

During the past year the major duties of the members of the Editorial Board have been (1) to review manuscripts at the request of the Editor, and (2) to find a suitable candidate for the replacement of Dr. Maurice James, who wishes to retire as Editor.

The Board is agreed that the same problems that confronted it during 1955 still are in existence and need attention. One problem is the question of the backlog of accepted manuscripts. Sixty manuscripts have been accepted during the year's period from December 1, 1955 to the end of November, 1956. Another six have been rejected. The material on hand will fill the ANNALS until September, 1957. Thus non-paid articles are now being published within about ten months of the acceptance date. What is more serious, however, is that in certain fields, particularly fields that have a considerable amount of experimental work in them, such as insect physiology and medical and veterinary entomology, we are not receiving our proper proportion of papers due to the fact that the authors simply are no longer submitting them to the ANNALS since they can achieve publication at an earlier date in other journals. This tends, therefore, to result in our not publishing an equitable representation of the papers from the various pertinent sections, i.e., A, B, C and D. It is perfectly clear that unless the ANNALS gains a reputation of having at least a good proportion of the best papers in the various fields, the best papers will be submitted elsewhere. This does not mean to imply

that papers appearing in the ANNALS have been poor, but rather that we are not getting in certain areas particularly, sufficient numbers of first-class papers that are being published.

Another problem which is intimately related to the question of fair and equitable distribution of papers is the Society's policy in regard to membership of authors. The committee is divided upon the matter of the present policy concerning publication by non-members. Some feel that in view of the existing circumstances this is justified. Others feel very strongly that papers should be accepted solely on their scientific merit and the pertinence of the subject matter regardless of whether the author is a member of the Society or not. We all agree that other things being equal, priority certainly should be given to manuscripts submitted by members, and that every opportunity should be taken to urge non-members to join and thus strengthen the Society. Some committee members feel that the exclusion of non-members from publishing in the ANNALS results in the loss of prestige, not only to the ANNALS but also to the Entomological Society of America within the framework of the biological scientific community.

The problems confronting the ANNALS are in no way peculiar; rather they are part and parcel of the present situation with respect to the dissemination of technical information. There is every reason to believe that additional, and most likely new methods, for the dispersing of scientific information will have to be devised in the not too distant future.

The Editorial Board has devoted considerable time and thought to the problem of finding a suitable can-

didate for the Office of Associate Editor during 1957, with the expectation that he will succeed Dr. James as Editor at the end of the year. The Society has been extremely fortunate in having the efficient and devoted services of Dr. James who, for personal reasons, finds that he must relinquish his post as Editor at the end of 1957. After due deliberation and investigation your committee would like to recommend that Dr. R. F. Hussey, Associate Professor, Department of Biology, University of Florida, be invited to accept the Associate Editorship of the ANNALS. We selected Dr. Hussey from a large panel of candidates, all of whom were well qualified. We wish to emphasize that Dr. Hussey's selection in no way casts reflection upon any other candidate who was considered.

In connection with the problems of the editorship, it was the opinion of one of the committee members that "the editorial work on the publications of the E.S.A. should be centralized in the office of a paid editor, the duties of the Editor to include both subject matter and mechanical editing. As a corollary recommendation it would seem advisable for such an editor to utilize and perhaps be required to refer manuscripts to the chairman of the respective editorial boards before accepting them for publication.

In sum, the following recommendations are presented for the consideration of the Governing Board:

1. The size of the ANNALS must be such that we can further reduce the interval between acceptance of a scientific paper and its publication.

2. The Editorial Board requests that the Governing Board extend to the Editor, Dr. James, an expression of confidence, gratitude and heartfelt thanks for his devoted and effective accomplishments as Editor.

3. The Board requests that the Governing Board extend to Dr. R. F. Hussey an offer of the Associate Editorship of the ANNALS.

Respectfully submitted,  
L. E. Chadwick  
M. H. Hatch  
R. I. Sailer  
L. E. Rozeboom  
H. T. Spieth, Chairman

#### REPORT OF THE EDITORIAL BOARD OF THE JOURNAL OF ECONOMIC ENTOMOLOGY

During the past year the editorial board of the JOURNAL OF ECONOMIC ENTOMOLOGY has worked closely with our editor, Dr. F. W. Poos, in resolving matters of editorial policy. Problems that have been considered are (a) cooperation with *Biological Abstracts* to the extent of requiring that papers submitted for publication must be accompanied by an abstract in suitable form for publication in *Biological Abstracts*, (b) publication of editorials in the JOURNAL or only in the BULLETIN and (c) reciprocity

of publication rights with other societies. When requested by the editor manuscripts have been reviewed to determine suitability for publication. An editorial dealing with publication policies has been prepared.

The editorial board wishes to acknowledge the splendid cooperation of Editor Poos and to comment him for his excellent work.

Respectfully submitted,

G. E. Bohart  
F. S. Arant  
E. L. Chambers  
R. L. Metcalf  
D. E. Howell, Chairman

#### REPORT OF THE EDITORIAL BOARD OF THE THOMAS SAY FOUNDATION

During the year 1956, no manuscripts have been received by the Editorial Board for publication by the Thomas Say Foundation.

Respectfully submitted,

H. O. Deay  
C. W. Sabrosky  
Louise M. Russell  
K. D. Quarterman  
Daniel Ludwig, Chairman

#### REPORT OF THE EDITORIAL BOARD OF ENTOMA

Three members (M. P. Jones, A. W. Morrell and J. B. Steinweden) met in June during the Pacific Branch Meeting of the Entomological Society of America. A second meeting was held during the annual Entomological Society of America Meeting in New York. Those present were C. C. Alexander, J. W. Apple, and M. P. Jones.

The 11th edition of ENTOMA was released during August, 1956. The Board commends Dr. Fisher for his efforts as Business Manager and Editor of this edition. It is recognized that the 11th edition appeared nine months late. This delay was not unexpected inasmuch as it was Dr. Fisher's first edition.

The Board commends the various contributors and state collaborators for their assistance in making the publication a success. State collaborators have a definite responsibility in bringing the publication to the attention of commercial concerns. Some benefits to be derived by these concerned are (1) reference use (2) advertising value.

The Board wishes to report that the 11th edition will be a financial success and will contribute materially to the general fund of the Society.

Dr. Fisher reports that the 12th edition of ENTOMA is expected to be completed by June, 1957.

Respectfully submitted,

C. C. Alexander  
J. W. Apple  
M. P. Jones  
J. B. Steinweden  
A. W. Morrell, Chairman

#### REPORTS OF REPRESENTATIVES TO SCIENTIFIC BODIES FOR 1956

##### REPORT ON THE JOINT COMMITTEE ON GRASSLAND FARMING

In accordance with your recent request, I have reviewed the activities of the Joint Committee on Grassland Farming during the last year, particularly as they related to entomological affairs. The most prominent was a co-sponsored program at the Cincinnati meetings, including a Symposium on "Grassland Insect Control Puts More Money into Farmers' Pockets" participated in by W. A. Baker, B. A. App, A. W. Lindquist and D. F. Beard, Agricultural Research Service, Beltsville, Maryland, F. S. Arant, Auburn, Alabama, F. W. Poos, Washington, D. C. and George Ferguson, New York City.

Business Sessions of the Joint Committee were also scheduled at the Association of Southern Agricultural Workers meetings in Atlanta, Georgia, February, 1956, and in Roanoke, Virginia, in June, 1956. Practically no items of entomological interest developed at these meetings. The annual Executive Committee meeting of the Joint Committee is scheduled for December 28, 1956, in New York City and the next general meeting of the Joint Committee is scheduled for Palo Alto, California with the American Institute of Biological Sciences in September, 1957.

As indicated in previous reports on the activities of the Joint Committee on Grassland Farming, the

organization is primarily one of publicity rather than action. As such, while limited opportunities are available for publicizing entomological accomplishments and needs through Joint Committee channels, little additional benefits can be expected to result from its activities, except as token support toward a worthy cause.

Respectfully submitted,

W. A. Baker, E. S. A. Representative

#### REPORT OF THE REPRESENTATIVE TO THE AGRICULTURAL RESEARCH INSTITUTE NATIONAL RESEARCH COUNCIL

The annual meeting of the Agricultural Research Institute was held October 15-16, 1956 at the National Academy of Sciences in Washington, D. C.

The Institute was established in 1951 "as a means of organizing the scientific talents of industry, public agencies, scientific societies, and private institutions in support of the Agricultural Board, and to provide a forum for unrestricted discussion of common problems." Its members are of two classes: Class A (dues paying) including chiefly industrial firms engaged in the production, processing and marketing of agricultural products; and those who manufacture agricultural equipment and supplies. Class B (exempt from dues) including Federal agencies, State experiment stations, scientific societies, and other non-industry groups or individuals with agricultural interests.

The annual dues are for the support of meetings of the Agricultural Board and its committees. These groups deal with problem areas of broad general significance to agriculture. They are authorized to stimulate research, to summarize data, and to make recommendations on research policy. They are 16 active committees constituted of 125 to 150 leading agricultural scientists. The Committee on Agricultural Pests, formed in 1954, now has five subcommittees dealing with insects and the other types of pests individually. During the past year the Committee gave attention to three general areas: 1. Losses caused by agricultural pests; 2. Hazards in the use of pesticides; and 3. Systemics and antibiotics in pest control.

It was announced at the ARI meeting that an international conference on systemic pesticides is being considered, to be held in October, 1957.

The Agricultural Research Institute sponsored a conference November 15, 1956 in Washington to discuss present problems relating to the safe use of pesticides and to regulations, use recommendations and education of users leading to greater safety in the application of these materials.

Respectfully submitted,

Harold H. Shepard

#### REPORT OF THE REPRESENTATIVE TO THE NATIONAL RESEARCH COUNCIL DIVISION OF BIOLOGY AND AGRICULTURE

Since most ESA members probably are not familiar with the rather diverse activities of the Division of Biology and Agriculture, some general explanatory remarks may be helpful before discussing specific progress made in the past year. First, there are officers and an executive committee, with L. A. Maynard, of Cornell University, Chairman, and F. L. Campbell, Executive Secretary. Thirty scientific societies have representatives to the Division, who are available for annual meetings, and who are consulted as needs arise. There are 4 representatives of the Federal Government, all of whom at present are from the Departments of Agriculture and Interior, designated by the President.

In order to deal properly with the varied subject matter which falls within the scope of the Division, several boards and institutes, and many committees, have been organized. Two of the principal ones are the Agricultural Research Institute, to which H. H. Shepard is the representative from the ESA, and the Agricultural Board. Either as members of the Agricultural Board or of its committees, G. C. Decker, H. L. Haller, B. B. Pepper, R. L. Metcalf, and L. D. Newsom are among the entomologists who have served in active advisory capacities. Two other major organizations are the Biology Council, and the Food and Nutrition Board. Of interest to entomologists are the Council's Committee on Genetics and Systematic Biology, and the Board's subcommittee on Pesticides. The last important organization of the Division is the Institute of Animal Resources, of which Dale W. Jenkins is Chairman. This Institute was formed to serve "as a central agency for correlating information on animal stocks used in biological, agricultural and medical research, assay, testing and teaching." To a growing degree, sources of standardized insects for testing and other laboratory uses are becoming important, thus bringing home to entomologists the value of the institute. Of the numerous committees of the Division, 3 examples may be cited, i.e., the one which has been responsible for compiling and editing the Handbook of Biological Data; the one which evaluates applications for Fulbright fellowships in biology and agriculture; and the one which evaluates applications for National Academy of Sciences—National Research Council, and National Science Foundation, postdoctoral fellowships in biology and agriculture.

The principal functions of the ESA representative to the Division are to attend an annual meeting held in the spring, and to furnish information pertaining to ESA interests as requested by the Division. Any ESA member should feel free to request cooperation from the representative whenever liaison with the Division may be helpful. The ESA representative normally is appointed for a 3-year term, and regular terms begin on July 1. Floyd F. Smith has served for two 3-year terms, and this annual report covers the second half of his final year of service, as well as the first half-year of the present representative's new term.

Dr. Smith attended the Annual Meeting of the Division, which was held May 11-12, 1956. The meeting encompassed various informative lectures on NAS-NRC activities, discussions of committee progress, a dinner meeting with a program of appropriate addresses, and a session at which suggestions from members were discussed. The next annual meeting will be held May 3-4, 1957.

An outstanding accomplishment of the Division has been the preparation of the Handbook of Biological Data. This book was edited by W. S. Spector, and it is estimated that 17,000 biologists contributed some assistance to the compilation. This book, of 584 pages, is published by W. B. Saunders Co., and is priced at \$7.50.

An important 63-page booklet "Career Opportunities in Biology" was also published in 1956. It was prepared by Russell B. Stevens, Executive Secretary of the Biology Council, primarily as a counseling aid for secondary schools and for students contemplating careers in biology. Some 22,000 copies of this booklet have been distributed. The ESA contributed \$100 toward the publication cost of this booklet, and in return received 100 copies for its own use and the satisfaction of knowing that several hundred other copies were paid for and were sent to high schools. The first 100 copies mentioned are being used by our Washington ESA office for counseling purposes.

Another 1956 publication of the Biology Council is a 20-page booklet "Biological Materials, Part I. Preserved Materials and Museum Collections," by



Ernst Mayr and Richard Goodwin, both members of the Council. Many fundamental questions important to the growth and utilization of museums, and as such of interest to entomologists engaged in taxonomic work, are discussed.

One matter in which the Division has expressed an interest is the utilization of scientists who have retired from their regular employment. It is desirable, both for personal reasons and for the welfare of society and the Nation, that these people continue to function within appropriate limits. Some scientific societies have special committees to study this subject, or to plan programs.

Recently, in response to a request from the Division for nominations for replenishing the pool of names from which are selected biologists of all kinds for service on panels and committees which screen applications for predoctoral, postdoctoral and senior postdoctoral fellowships, a list of names in each of the three categories was provided, following consultation with Executive Secretary R. H. Nelson.

Although not a direct function of the Representative to the Division, it may be appropriate to mention that, acting on nominations from the President of the ESA, the National Academy of Science—National Research Council appointed 5 ESA members as Delegates to the 10th International Congress of Entomology, at Montreal. The delegates were R. L. Beard, G. C. Decker, A. B. Gurney, D. W. Jenkins, and F. F. Smith.

Respectfully submitted,

Ashley B. Gurney

#### REPORT OF THE REPRESENTATIVE ON THE COUNCIL OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The Society was not officially represented at the meeting of the AAAS in Atlanta in December, 1955. To serve in this capacity a person must be a "fellow" of the AAAS. However, Kent S. Littig of Atlanta, sat in on the meeting as an observer and made an informative report on the meeting. Most of the details that he reported have since been published in *Science*. We are grateful to Mr. Littig for this service to the Society.

H. H. Ross, one of our present Council members, has made the following report on AAAS matters of interest to entomologists that developed during the interval between the Atlanta and the New York Council meetings:

#### REPORT OF THE REPRESENTATIVE TO THE AAAS COUNCIL

Prior to the annual meeting of the AAAS Council to be held in New York, December 27, 4:00 p.m., and December 30, 9:00 a.m., certain information has been distributed to the councilors concerning actions taken by the Board of Directors of the AAAS during the year plus an agenda of material to be considered at the above Council meeting. Five items appear to be of either direct or indirect interest to the ESA.

1. *Travel Assessment.* I reported earlier to President Porter regarding an AAAS proposal that each affiliated society be assessed \$25.00 a year to be used for traveling expenses of council members. The over-all response from affiliated societies has been roughly three to one against the proposal. As a consequence the Board of Directors of the AAAS suggest that this idea be dropped unless the Council proposes some other course of action.

2. *Fifty Year Members.* Each year the AAAS announces elections to their Fifty Year Member Group. It is of interest that of the list of 83 elected this year, eight are members of the Entomological Society:

E. A. Back  
J. J. Davis  
R. W. Harned  
F. Z. Hartzell

P. R. Jones  
W. D. Pierce  
G. D. Shafer  
V. E. Shelford

3. *Retirement Provisions.* The AAAS has been investigating the possibility of adopting a retirement annuity program to be funded through TIAA and CREF. They believe that a workable scheme can be put into operation. I would like to suggest that the ESA get in touch with Dr. Wolfe with the idea of examining the AAAS recommendations and further investigating directly with TIAA the possibility and desirability of taking similar action.

4. *Program for Annual Meetings.* The AAAS Committee on Membership Development has written a lengthy report containing among other things recommendations aimed at making program of annual meetings more attractive to the membership. I thought that the Governing Board of ESA would be interesting in their feeling that (1) the planned symposium type of meeting seems to be the answer to providing in a relatively short time a coverage of diverse topics of interest to the largest number of members (this year the AAAS program is either completely or nearly completely programs of this type); (2) that interdisciplinary symposiums are the most advantageous from the standpoint of developing communication between workers in many interfield areas of study in which communication is difficult; and (3) that program planning should be done on more than a year-by-year basis, rather than plans be made several years ahead in order to insure the better coverage and sequence of topics.

5. *Social Aspects of Science.* The AAAS is gravely concerned with the fact that, in essence, a tremendous scientific technology has been turned loose in the hands of administrators who understand little about the needs of science, the dangers of many parts of the technology, and the long-run problems in economics and social aspects which will arise from the present technological era. Presumably this topic will be discussed at some length in the Council meeting. If action is planned on this project (and AAAS policy is practically committed to it) the hope is that not only the AAAS organization itself will make efforts to attempt remedial action, but that also affiliated societies will assist in the program. At the present moment this whole subject is in the talking stage but if constructive ideas and suggestions are developed, the ESA could conceivably play an important role if it so desired. I mention this item simply as a news item of possible future interest. I would suggest, however, that our Executive Secretary obtain mimeographed material on this subject from the AAAS and distribute it to the members of the Governing Board. Presumably more inclusive material on this topic will be available from the AAAS office after the New York Council meetings.

Respectfully submitted,

H. H. Ross,  
Council member for ESA.

#### Titles and Abstracts

These must be in the hands of the PROGRAM COMMITTEE Chairman (see page 23) by September 1, 1957.

## REPORTS OF SPECIAL COMMITTEES AND REPRESENTATIVES IN 1956

### PRELIMINARY REPORT OF THE E.S.A. MEMORIAL LECTURE COMMITTEE

It is agreed that some sort of Memorial Lecture should be established along the line of the old ESA Annual Lecture, and that it will be stimulating to our Science.

There are, at least, two ideas as to its nature.

- (1) That it be given by a good entomological speaker who should be rewarded with an honorarium, a commemorative medal or an appropriate certificate.
- (2) That it be given by some one, chosen by a committee, for an outstanding recent contribution. He could be asked to report on his work or give a general lecture. Here, also, an award of some kind is to be considered.

If the lecture is to bear a name honoring some older entomologist, it is the thinking of one committee member that because there are so many outstanding ones that, perhaps, it should honor one of the older men who was not a member of either society, such as LeConte.

It is felt that the lecture should not be given at a separate meeting as it was in the old society but either at the opening business session or the closing business session, provided that latter is not on the last day of the meeting.

There are two thoughts as to a committee. (1) To consist of immediate past and present officers but chairmaned by some senior member not a current officer, such as a charter member, as long as one is available and (2) The President, the President-Elect and the Past-President and the chairmen of the various branches.

It is hoped that the Society can afford a small honorarium or other award until a sponsor can be found that could make the award more worthwhile.

It is hoped that more definite ideas can be formulated when the committee meets in New York and that members of the Governing Board may be able to pass along some of their thoughts on the subject to our committee.

Respectfully submitted,

E. G. Linsley                      C. B. Phillip  
C. C. Compton                  W. P. Hayes, Chairman  
C. K. Dorsey

### REPORT OF THE COMMITTEE ON INDICES TO THE LITERATURE OF AMERICAN ECONOMIC ENTOMOLOGY

No further changes have been made in the form of the *Index*, and the indexing procedure discussed in the last report has been followed in 1956. The work was unavoidably interrupted early in the year, however, by the serious and rather long-continued illness of Miss Hawes. Fortunately, she has completely recovered; and, furthermore, she is now receiving some competent assistance. Mrs. Helene Cushman, an experienced indexer, has recently been assigned by the Library of the Department of Agriculture to aid Miss Hawes with the preparation of the Indices.

The following record summarizes the developments with respect to preparation and publication since the last report.

*Index IV* (1954)—Published August 1956.

*Index XV* (1955)—Typing begun in December 1956.

*Index XVI* (1956)—Indexing in progress.

Respectfully submitted,

Ina L. Hawes  
B. A. Porter  
C. F. W. Muesebeck, Chairman

### REPORT OF SPECIAL REPRESENTATIVE

As requested in your letter of January 10, I attended the inauguration of Dr. Julius Wayne Reitz as President of the University of Florida as a representative of the Entomological Society of America. It was a very distinguished gathering, and I was proud to be able to present the good wishes of the Society to Dr. Reitz personally at the afternoon reception.

The academic procession, composed of the faculty and delegates, filled most of the ground floor of the gymnasium, which is not a small structure. I believe every important American university and several European universities were identifiable among the colorful hoods. I believe the magnitude of the occasion was brought home to me most strongly at the luncheon. After the toastmaster had introduced the guests at the head table, he called for all college presidents to rise, and we found that most of the other tables scattered throughout the room were honored by the presence of a president of one of the smaller colleges.

Respectfully submitted,

Carroll N. Smith

### GOVERNING BOARD

H. M. Armitage                      Sacramento, Calif. (1958)  
J. W. Apple                          Madison, Wisc. (North Central, 1957)  
C. P. Clausen                          Riverside, Calif. (C, 1958)  
F. W. Fletcher                      Midland, Mich. (F, 1958)  
M. P. Jones                          Washington, D. C. (E, 1959)  
C. W. Kearns                          Urbana, Ill. (B, 1957)  
K. L. Knight                          Washington, D. C. (D, 1959)  
E. H. Littooy                          San Francisco, Calif. (Pacific, 1959)  
R. L. Metcalf                          Riverside, Calif. (1959)  
R. H. Nelson                          Washington D. C. (Non-voting)  
P. W. Oman                          Beltsville, Md. (A, 1957)  
B. B. Pepper                          New Brunswick, N. J. (Eastern, 1958)  
B. A. Porter                          Beltsville, Md. (1957)  
P. J. Reno                              Wilmington, Del. (Southwestern, 1958)  
O. I. Snapp                              Fort Valley, Ga. (Cotton States, 1959)

### EDITORIAL BOARDS—1957

ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA  
L. E. Chadwick, *Chairman*, Urbana, Ill. (B, 1957)  
R. I. Sailer, Washington, D. C. (A, 1958)  
M. H. Hatch, Seattle, Washington (A, 1959)  
L. E. Rozeboom, Baltimore, Md. (D, 1960)  
J. A. Adams, Poughkeepsie, N. Y. (C, 1961)

### JOURNAL OF ECONOMIC ENTOMOLOGY

G. E. Bohart, *Chairman*, Logan, Utah (C, 1957)  
F. S. Arant, Auburn, Alabama (F, 1958)  
E. L. Chambers, Madison, Wisconsin (E, 1959)  
R. L. Metcalf, Riverside, California (B, 1960)  
D. E. Howell, Stillwater, Oklahoma (D, 1961)

### THOMAS SAY FOUNDATION

K. D. Quarterman, *Chairman*, Savannah, Georgia (D, 1957)  
Louise M. Russell, Washington, D. C. (A, 1958)  
C. W. Sabrosky, Washington, D. C. (A, 1959)  
H. O. Deay, Lafayette, Indiana (C, 1960)  
L. E. Chadwick, Urbana, Illinois (B, 1961)

### ENTOMA

C. C. Alexander, *Chairman*, Ardsley, N.Y. (F, 1957)  
J. B. Steinweden, Los Angeles, California (E, 1958)  
M. P. Jones, Washington, D. C. (A, 1959)  
J. W. Apple, Madison, Wisconsin (F, 1960)  
W. C. McDuffie, Beltsville, Maryland (D, 1961)

### Standing Committees

*Committee on Insect Surveys*  
N. O. Berry, Sacramento, Calif. 1960

L. D. Newsome, Baton Rouge, La.	1960
C. A. Bower, Oklahoma City, Okla.	1959
K. D. Quarterman, Savannah, Ga.	1959
D. W. Hamilton, Vincennes, Ind.	1958
W. E. McCauley, Scarsdale, N. Y.	1958
J. A. Beal, Washington, D. C.	1957
R. W. Every, <i>Chairman</i> , Corvallis, Ore.	1957
Kelvin Dorward, <i>Ex-Officio</i> , Vienna, Va.	
P. W. Oman, <i>Ex-Officio</i> , Beltsville, Md.	

#### Program Committee

L. D. Anderson, Riverside, Calif.	1959
P. W. Oman, Beltsville, Md.	1957
E. N. Woodbury, <i>Chairman</i> , Wilmington, Delaware	1958

#### Committee on Insecticide Terminology

T. G. Bowery, Raleigh, N. C.	1959
W. M. Haskins, Berkeley, Calif.	1959
C. N. Smith, Orlando, Fla.	1958
G. D. Beck, Madison, Wisc.	1957
C. C. Roan, Manhattan, Kans.	1957
P. A. Dahm, <i>Chairman</i> , Ames, Iowa	1958

#### Committee on Insecticide Reference Standards

J. E. Casida, Madison, Wisc.	1960
G. F. Ludvik, St. Louis, Mo.	1959
F. W. Fisk, Columbus, Ohio	1958
E. E. Ivy, <i>Chairman</i> , College Station, Texas	1957

#### Committee on Common Names of Insects

F. P. Keen, Berkeley, Calif.	1959
A. V. Mitchener, Manitoba, Canada	1959
R. H. Painter, Manhattan, Kansas	1958
H. H. Schwartz, Ithaca, N. Y.	1958
R. F. Smith, Berkeley, Calif.	1958
D. E. Hardy, Honolulu, Hawaii	1957
L. C. Kuitert, Gainesville, Fla.	1957
J. L. Lafoon, Ames, Iowa	1957
R. I. Sailer, <i>Chairman</i> , Washington, D. C.	1959

#### Committee on Membership

L. A. Carruth, Tucson, Ariz.	1959
W. G. Eden, Auburn, Ala.	1959
D. L. Collins, Albany, N. Y.	1958
P. A. Glick, Brownsville, Texas	1958
Randall Latta, Beltsville, Md.	1957
G. D. Jones, <i>Chairman</i> , Raleigh, N. C.	1957

#### Committee on Entomological Nomenclature

J. L. Lafoon, Ames, Iowa	1959
H. K. Townes, Ann Arbor, Mich.	1959
J. A. Slater, Storrs, Conn.	1959
C. W. Sabrosky, Washington, D. C.	1958
R. L. Usinger, Berkeley, Calif.	1958
G. S. Walley, Ottawa, Canada	1958
J. L. Gressitt, Honolulu, Hawaii	1957
C. D. Michener, Lawrence, Kansas	1957
J. T. Medler, <i>Chairman</i> , Madison, Wisc.	1957

#### Committee on Finance

J. E. Bussart, Wheaton, Ill.	1959
J. W. Apple, Madison, Wisc.	1958
F. L. Campbell, <i>Chairman</i> , Washington, D. C.	1957

#### Committee on Professional Training, Standards and Status

C. E. Palm, Ithaca, N. Y.	1959
Eugene Gerberg, Baltimore, Md.	1958
R. E. Heal, Elizabeth, N. J.	1958
Clyde F. Smith, Raleigh, N. C.	1957
Leslie M. Smith, Davis, Calif.	1957
K. L. Knight, <i>Chairman</i> , Washington, D. C.	1959

### SOCIETY REPRESENTATIVES

#### Representative to the Joint Committee on Grassland Farming

B. A. App, Beltsville, Maryland	1957
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#### Representative to the National Research Council, Division of Biology and Agriculture

A. B. Gurney, Washington, D. C.	June 30, 1959
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#### Representative to the Agricultural Research Institute, Agricultural Board

H. H. Shepard, Washington, D. C.	1959
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#### Representative on the American Association for the Advancement of Science Council

J. J. Davis, Lafayette, Indiana	1957
G. H. Bradley, Washington, D. C.	1958

#### Section and Sub-Section Officers, 1957

##### A. GENERAL ENTOMOLOGY

D. M. DeLong, <i>Chairman</i> , Columbus, Ohio
Louise M. Russell, <i>Vice-Chairman</i> , Washington, D. C.
T. H. Hubbell, <i>Secretary</i> , Ann Arbor, Michigan

##### Sub-Section a, Teaching

J. H. Roberts, <i>Chairman</i> , Baton Rouge, La.
L. H. Townsend, <i>Vice-Chairman</i> , Lexington, Ky.
P. C. Stone, <i>Secretary</i> , Columbia, Missouri

##### B. PHYSIOLOGY AND TOXICOLOGY

Daniel Ludwig, <i>Chairman</i> , New York, N. Y.
A. S. Perry, <i>Vice-Chairman</i> , Savannah, Georgia
J. M. Grayson, <i>Secretary</i> , Blacksburg, Virginia

##### C. BIOLOGY

G. S. Roussel, <i>Chairman</i> , Baton Rouge, La.
P. B. Dowden, <i>Vice-Chairman</i> , New Haven, Conn.
F. R. Lawson, <i>Secretary</i> , Oxford, N. C.

##### Sub-Section a, Biological Control

M. H. Brunson, <i>Chairman</i> , Moorestown, N. J.
H. A. Jaynes, <i>Secretary</i> , New Haven, Conn.

##### Sub-Section b, Apiculture

W. E. Dunham, <i>Chairman</i> , Columbus, Ohio
R. L. Parker, <i>Secretary</i> , Manhattan, Kansas

##### Sub-section c, Relations of Insects to Plant Diseases

R. K. Chapman, <i>Chairman</i> , Madison, Wisconsin
R. C. Dickson, <i>Vice-Chairman</i> , Riverside, Calif.
G. W. Simpson, <i>Secretary</i> , Orono, Maine

##### Sub-Section d, Ecology and Bionomics

R. L. Rabb, <i>Chairman</i> , Raleigh, N. C.
J. T. Medler, <i>Vice-Chairman</i> , Madison, Wisc.
G. T. York, <i>Secretary</i> , Ankeny, Iowa

##### D. MEDICAL AND VETERINARY ENTOMOLOGY

L. E. Rozeboom, <i>Chairman</i> , Baltimore, Md.
D. R. Johnson, <i>Vice-Chairman</i> , Falls Church, Va.
D. W. Micks, <i>Secretary</i> , Galveston, Texas

##### E. CONTROL, EXTENSION AND REGULATORY ENTOMOLOGY

G. D. Jones, <i>Chairman</i> , Raleigh, N. C.
N. O. Berry, <i>Vice-Chairman</i> , Sacramento, Calif.
R. W. Sherman, <i>Secretary</i> , Washington, D. C.

##### Sub-Section a, Extension

Harold Gunderson, <i>Chairman</i> , Ames, Iowa
Sterling Kyd, <i>Vice-Chairman</i> , Columbia, Mo.
J. M. Amos, <i>Secretary</i> , Blacksburg, Virginia

##### Sub-Section b, Plant Pest Control and Quarantine

G. F. Callaghan, <i>Chairman</i> , Washington, D. C.
H. L. Bruer, <i>Secretary</i> , Nashville, Tennessee

##### F. CHEMICAL CONTROL INVESTIGATIONS

J. E. Fahey, <i>Chairman</i> , Vincennes, Ind.
P. A. Dahm, <i>Vice-Chairman</i> , Ames, Iowa
B. C. Dickinson, <i>Secretary</i> , Lyndonville, N. Y.



## THE ENTOMOLOGICAL SOCIETY OF AMERICA

# CONSTITUTION \*

As amended by the Society (effective date to go here)

*Preamble.* The *Entomological Society of America* established in 1906 and the *American Association of Economic Entomologists* established in 1889 have pooled and consolidated their interests and resources to form a single non-profit, scientific and educational organization which is a corporate body under the laws of the District of Columbia and which as such shall be governed by and operate under this Constitution and accompanying By-Laws.

### ARTICLE I

#### Name

Section 1. This organization shall be known as THE ENTOMOLOGICAL SOCIETY OF AMERICA.

### ARTICLE II

#### Object

Section 1. It shall be the purpose of this Society to promote the science of entomology in all its branches, to assure cooperation in all measures tending to that end, and to publish the *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA*, the *JOURNAL OF ECONOMIC ENTOMOLOGY* and other entomological publications.

### ARTICLE III

#### Membership

Section 1. *Classes of Membership.* The classes of membership shall be Active, Honorary, Emeritus, and Student.

Section 2. *Active Membership.* All persons engaged in work in entomology or allied fields and other persons having suitable training or interest in entomology may become Active Members by vote of the Governing Board, on recommendation by the Committee on Membership, after a regularly executed application, endorsed by two Active Members and accompanied by the required fee, has been filed with the Executive Secretary.

Section 3. *Honorary Membership.* Honorary Membership may be conferred on any one who has performed long and distinguished service in the field of entomology. Proposals for Honorary Membership shall be made in writing with a supporting statement by two Active Members and shall be acted upon by the Governing Board at the annual meeting and such action submitted to the Society for vote by mail ballot. Nominees must receive four-fifths of the ballots cast to be elected. The total number of Honorary Members shall not exceed 15 at any one time, and not more than two may be elected in any one year.

Section 4. *Emeritus Membership.* Any Active Member in good standing who has given long service to the profession and has retired from active professional service may upon request to the Executive Secretary and approval by the Governing Board be transferred to an Emeritus Membership status.

Section 5. *Student Membership.* Any person who is registered as a full-time undergraduate student at the college level, or as a full-time or half-time graduate student, in any recognized educational institution and who is studying entomology, or proposes to major in entomology or later to seek employment in entomology may become a Student Member on approval of the Governing Board and at reduced rates to be specified by the Board on application to the Executive Secretary, accompanied by the required fee. The application for student membership must be signed by two active members in good standing and the student's status as a bona fide student as defined herein certified to by the Head of the College Department concerned. Student membership must be renewed annually.

### ARTICLE IV

#### Officers

Section 1. The *Officers* of this Society shall be a President, a President-Elect and an Executive Secretary.

Section 2. *President and President-Elect.* The President-Elect shall be elected by mail ballot as specified in the By-Laws. He shall serve one year as President-Elect and the following year as President. He shall assume office as President-Elect at the close of the annual meeting following his election and shall become President at the close of the annual meeting held at the end of his term as President-Elect.

Section 3. The *Executive Secretary* shall be appointed by the Governing Board at a salary and under conditions to be determined by the Board.

### ARTICLE V

#### Governing Board

Section 1. The *Governing Board* is the legal representative of the Society and as such shall be in charge of the affairs, funds and property of the Society and shall conduct the business of the Society, subject to decisions on policy by the membership by mail ballot or at an annual meeting.

This Board shall consist of the following Society members:

President  
President-Elect  
Most recent available Past-President  
One Representative elected by each Branch  
Three Representatives elected by each Division

Section 2. The President, the President-Elect and the Past-President shall constitute an Executive Committee for the conduct of interim business that may be authorized by the Governing Board.

\* Draft of a proposed revised and amended Constitution—being the Report of the *Special Committee on Revision of the Constitution*—Herbert H. Ross, Bailey B. Pepper, and Halbert M. Harris, Chairman.

## ARTICLE VI

### Divisions

Section 1. *Designation of Divisions.* For the purpose of voting and determining representation on the Governing Board and Editorial Boards and to facilitate the work of the Society, the membership shall be grouped into two Divisions as follows:

Division I, Basic Entomology<sup>1</sup>

Division II, Applied Entomology<sup>2</sup>

Section 2. *Divisional Affiliation.* Each Active, Honorary, and Emeritus member shall, by procedure specified by the Governing Board, indicate his choice of affiliation with one of the above-named Divisions. The Executive Secretary shall maintain a list of the membership in each of the two Divisions. In matters pertaining to the Society as a whole no member may vote or serve as a Representative from a Division other than his officially recorded one.

Section 3. *Activities of Divisions.* Divisions ordinarily will not hold formal meetings. They may, however, on special occasions, hold such meetings at the time and place of the Society's annual meeting upon written petition of thirty members, and with the approval of the Governing Board. At such a called special meeting of a Division the Representative to the Governing Board from that Division who has served longest as such Representative shall serve as chairman.

Section 4. *Representatives from the Divisions to the Governing Board* shall be elected as specified in the By-Laws.

## ARTICLE VII

### Branches

Section 1. *Branches* are established on a geographical basis, for the purpose of holding meetings, presenting papers, conducting conferences, and stimulating interest in entomology.

Section 2. *Membership* in a Branch shall be restricted to members of the Society residing or stationed in the area covered by that Branch.

Section 3. *Officers of Branches.* The officers of each Branch shall be a Chairman, a Vice-Chairman or Chairman-Elect, a Secretary-Treasurer, and a Representative to the Governing Board. Election to these offices shall be restricted to voting members of the parent society. They shall be elected at the annual meeting of the Branch by procedure to be adopted by the Branch.

Section 4. *Activities of Branches.* Branches may hold meetings or conferences at appropriate times and places. Branches shall not charge dues, but they may charge registration fees for those in attendance at meetings (members or non-members) in an amount to be determined by the Branch. A charge may also be made for the Proceedings, Minutes, or Records of Branch meetings. To further the activities of the Society, Branches may authorize the establishment of local Chapters.

<sup>1</sup>To encompass in general the membership of those workers with primary interest or employment in such phases of entomological activity as: morphology and taxonomy; physiology, including pathology, and pesticide mode of action studies; embryology, growth and development, and insect genetics; ecology, including distribution and evolution; and the teaching and training of entomologists;—whether or not these basic aspects relate to economic or non-economic insects.

<sup>2</sup>To encompass in general the memberships of those workers with primary interest or employment in such phases of entomological activity as: honey production and pollination; extension entomology; plant pest control, survey and quarantine work; insecticide formulation, production, testing, application and sales; industrial and pest control operations; the use of biological factors in pest control, and the more directly economic aspects of medical and veterinary entomology, forest and horticultural entomology, field crop pests, etc.

Section 5. *Establishment of Branches.* To become established, proposed Branches must formally petition the Society, be endorsed by the Governing Board and be approved by the Society. The petition must set forth the territorial limits of the proposed Branch and indicate clearly the particular purpose for which the Branch is to be formed; that an organized group of society members desiring to form a Branch already exists; and that the establishment of the proposed Branch will be useful to the Society and to entomology. The currently existing Branches which have been established by the Society are: Eastern Branch, Cotton States Branch, Southwestern Branch, Pacific Branch, and North Central Branch.

## ARTICLE VIII

### Program Sections

Section 1. *Designation of Sections.* In order to encourage group interests and to facilitate the development of the programs for the annual meetings and as an aid in arranging symposia and discussion sessions, the Society and the Branches may establish Program Sections which shall consist of groups of members desiring to conduct meetings on specified topics. Members may affiliate with more than one Section. Sections may be disbanded when lack of interest as evidenced by non-attendance or shortage of papers would warrant such action. New Sections may be established or old Sections re-instated by the Governing Board after suitable petition by interested groups of members. The following named Sections are recognized.<sup>3</sup>

Section 2. *Activities of Sections.* Sections may hold meetings or conferences at the time and place of the Society's annual meeting, and in connection with Branch meetings, or at the written request of the Section officers and with the approval of the Governing Board at other times and places.

Section 3. *Officers of Sections.* The officers of each Section shall be a Chairman, a Vice-Chairman, and a Secretary or Recorder. These officers shall be elected at the annual meeting of the Society by procedure to be decided upon by the Section, but when not so elected or in case of a vacancy may be appointed by the President at the request of the Program Committee.

## ARTICLE IX

### Funds

Section 1. All monies due the Society shall be collected, disbursed, and accounted for by such officers as specified in the By-Laws or as the Governing Board shall determine.

Section 2. A permanent fund shall be established to include donations, bequests, and such other property or funds as may be added to it. This permanent fund shall be in custody of the Governing Board. The principal of this fund shall be invested. It may be expended only upon the recommendation of the Governing Board and the approval of the Society by mail ballot or at any meeting, notice of such action to be given in the call for said meeting. The interest on this permanent fund in any year may be used to meet necessary expenses of the Society on approval by the Governing Board; but if not so expended dur-

<sup>3</sup>A. Insect Morphology and Taxonomy

B. Insect Physiology and Toxicology

C. Insect Biology and Ecology

D. Medical and Veterinary Entomology

E. Pest Survey, Control and Regulatory Entomology

F. Chemical Control Investigations

G. Apiculture

H. Extension Entomology

I. Teaching

J. Agriculture Crop Insect Investigations

K. Forest Insect and Ornamental Plant Insect Investigations

L. Biological Control.

ing the year, shall be added to the principal. Loans from the permanent fund may be made to other established funds of the Society for self-liquidating projects, on recommendation of the Governing Board and the approval of the Society.

## ARTICLE X

### *Publications*

Section 1. The regular publications of the Society shall be the *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA*, the *JOURNAL OF ECONOMIC ENTOMOLOGY*, and the *BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA*. Other official publications, including *Thomas Say Foundation Monographs*, *ENTOMA*, and the *INDEX TO AMERICAN ECONOMIC ENTOMOLOGY* may be issued from time to time.

## ARTICLE XI

### *Committees*

Section 1. *Standing Committees*. The standing committees shall include the following: Program; Membership; Entomological Nomenclature; Common Names of Insects; Insecticide Terminology and Reference Standards; Insect Surveys; Finance; and Professional Training, Standing and Status. The duties of these committees and the manner for their establishment are set forth in the By-Laws. Other standing committees may be authorized by vote of the Society after recommendation by the Governing Board; and any standing committee may be dismissed by similar procedure.

Section 2. *Service Committees*. In order to further the aims of the Society the Governing Board may establish Service Committees under a policy and for periods of time to be set forth by the Board.

## ARTICLE XII

### *Meetings and Voting*

Section 1. The annual meeting shall be held at such time and place as may be decided upon by the Governing Board. Special meetings may also be called by the Governing Board.

Section 2. *Mail Ballots*. Matters of major importance shall be placed before the entire voting membership by mail ballot. Any matter shall be voted on by mail ballot upon written petition to the Governing Board by 100 members. All mail ballots shall have a specified deadline for their return beyond which they shall be void, provided however, that said deadline date shall not be less than thirty days after the original mailing of the ballots.

# THE ENTOMOLOGICAL SOCIETY OF AMERICA

## BY-LAWS

## ARTICLE I

### *Membership Privileges*

Section 1. All members shall have equal privileges as to discussion at meetings and presentation of papers but this provision shall not obligate any editor or editorial board to accept such papers for publication.

Section 2. Active members shall have the privilege of voting, holding office and otherwise participating in the affairs of the Society. They shall receive the *BULLETIN* and either the *ANNALS* or the

## ARTICLE XIII

### *Society Affiliation*

Section 1. To further the aims of the *Entomological Society of America* and to facilitate cooperation between the Society and other organizations and among the latter the Governing Board may, after suitable petition and under conditions to be set by the Governing Board, elect an established organization with purposes comparable to those of the Society to be an official affiliate of the *Entomological Society of America*.

Section 2. The Society may affiliate with other organizations in order to further the aims of the Society, upon recommendation of the Governing Board and approval by vote of the membership.

## ARTICLE XIV

### *Sustaining Associates*

Section 1. The Society, under a policy to be set by the Governing Board, may establish and publicize a roster of Sustaining Associates. A Sustaining Associate of the Entomological Society of America may be either an individual or an industrial or other type of organization interested in giving support in furtherance of the profession of entomology and of the aims and objectives of the Society. Sustaining Associates shall have certain rights and privileges to be set by the Governing Board.

## ARTICLE XV

### *Amendments*

Section 1. Amendments to this Constitution may be proposed by the Governing Board or by petition to the Governing Board signed by fifty (50) voting members. All proposed amendments shall be announced at the annual meeting of the Society. The President shall appoint a special committee of three members not currently on the Governing Board to consider the proposed amendment and to report its recommendations to the Governing Board. Upon action of the Governing Board the proposed amendment shall be presented at the annual meeting at which time the annual meeting may make changes germane to the subject and purpose of the amendment. In the case of disapproval by the Governing Board, a proposed amendment may be presented to the Society for vote upon petition by 10 percent of the membership. The amendment shall then be referred by mail ballot to the entire voting membership, not less than 30 days after appearing in an issue of the *BULLETIN*. If two-thirds of the votes cast are in the affirmative, the amendment shall be adopted. Amendments are effective as of the date of adoption unless otherwise specified.

*JOURNAL*. Also they shall be entitled to receive other Society publications at membership rates.

Section 3. Honorary Members shall be exempt from the payment of dues, shall receive without further cost to them the Society publications (the *BULLETIN* and the *ANNALS* and/or the *JOURNAL*) to which they were subscribing at the time of their election, and shall otherwise be entitled to all privileges of Active membership.

Section 4. Emeritus Members shall be exempt from the payment of dues. They shall have the privilege of voting and holding office and shall receive the *BULLETIN* without cost, and shall have the



privilege of subscribing to other Society publications at membership rates.

Section 5. Student Members shall receive the *BULLETIN* and shall have the privilege of subscribing to the *ANNALS* and/or the *JOURNAL* at student membership rates but they shall not be privileged to vote or hold office.

Section 6. Membership of persons who are accepted before July 1 shall begin the preceding January 1; membership of those accepted at a later date shall begin the following January 1, unless the earlier date is requested and the required dues have been paid.

## ARTICLE II

### *Officers—Duties and Method of Election*

Section 1. *President and President-Elect.* The President shall preside at the annual meeting of the Society, serve as Chairman of the Governing Board and its Executive Committee, and otherwise shall have and exercise such powers as are reasonably necessary to carry out his official duties, including, with the approval of the Governing Board, the filling of vacancies in the standing committees; such appointees to serve until the close of the next annual meeting. In case of inability of the President to serve, the Governing Board shall designate a President Pro Tempore.

Section 2. The President-Elect shall be elected by mail ballot by the following procedure: At least four months prior to each annual meeting the Executive Secretary shall request the Governing Board to nominate a slate of three names for President-Elect. These names, arranged alphabetically, shall be placed on a ballot to be mailed to each voting member not later than three months before the annual meeting with the request that he indicate his preference on the ballot and return it in a special envelope marked "Ballot." There shall be included with each ballot a concise statement pertinent to the qualifications, including service to the Society and the profession, of each nominee for President-Elect. The votes shall be tabulated by a special committee of three members selected by the Executive Secretary. The candidate receiving the greatest number of votes shall be declared elected and in the eventuality of a tie-vote the ballot shall be decided by lot. A vacancy in the office of President-Elect shall be filled as soon as practicable by the same procedure.

Section 3. The *Executive Secretary* shall serve as Secretary and Treasurer and as Business Manager of the publications and other affairs of the Society. He shall be responsible for the mechanical editing of the papers and publications in accordance with a publication policy adopted by the Governing Board. He shall keep a record of the proceedings, attend to the general correspondence, collect all monies due, pay all bills incurred by the Society, submit a report at each annual meeting, and perform such other duties as may be delegated to him by the Governing Board. He shall furnish a suitable corporate-surety bond (premium to be paid by the Society) and his accounts shall be audited annually, or more frequently if so directed by the Governing Board, by a certified public accountant. He shall attend as far as possible the annual and special meetings of the Society and shall receive reimbursement for necessary expenses. He shall also attend all meetings of the Governing Board, and may make recommendations as to policies or business to be transacted by the Board.

## ARTICLE III

### *Governing Board*

Section 1. The Divisional Representatives on the Governing Board shall be elected by mail ballot as follows: The Governing Board shall appoint a

nominating committee for each Division. These special nominating committees shall each consist of three individuals selected from the membership of the respective Division and their function shall be to nominate a slate of three candidates to replace the retiring Representative to the Governing Board from that Division. The nominations from each of the nominating committees shall be reported to the Executive Secretary who shall list the nominees alphabetically on ballots, one ballot for each Division. The ballot shall show the name of the retiring Representative and at the time when the ballots for President-Elect are being distributed shall be mailed to the Society members who are on record as belonging to the respective Division. The person having the highest number of votes shall be declared elected. In case of a tie vote the decision shall be by lot.

Section 2. The Divisional and the Branch Representatives on the Governing Board shall each serve for three years,—the elections initially to be staggered under a rotation scheme to be developed by the Governing Board so that ordinarily one Representative from each Division and Representatives from not more than two Branches are elected in any one year. Newly elected Representatives to the Governing Board shall take office at the close of the annual meeting of the Society following their election.

Section 3. In case of vacancy or inability of a Branch Representative on the Governing Board to attend an annual or special meeting of the Board, the Chairman of the Branch concerned may designate an alternate to serve for that particular meeting and this alternate shall have the right to vote on matters coming before the Board.

Section 4. In case of vacancy or inability of a Divisional Representative on the Governing Board to attend an annual or special meeting of the Board, the Governing Board may designate an alternate from within the membership of the Division concerned to serve for that particular meeting, and said alternate shall have the right to vote on matters coming before the Board.

## ARTICLE IV

### *Dues*

Section 1. Dues shall be set by the Governing Board, subject to the approval of the Society by letter ballot.

## ARTICLE V

### *Publications*

Section 1. General responsibility for the publications of the Society shall rest with the Governing Board, including the appointment of the Editorial Boards and the establishment of the subscription price, both to members and non-members.

Section 2. *Editorial Boards.* Unless otherwise provided for, there shall be an Editorial Board or equivalent body, such as the Trustees of the Thomas Say Foundation, for each publication. Each Editorial Board shall recommend to the Governing Board policies affecting the publication for which it is responsible, and shall select the Editor for the publication involved, who unless otherwise specified shall serve for a term of 5 years. The members of the Editorial Board shall, on request by the Editor, review papers submitted and determine their suitability for the particular medium. The Editorial Board may enlist the services of other persons where special needs exist. Unless otherwise provided, each Editorial Board shall consist of five persons, each serving for a five-year term, one term expiring each year. The retiring member of each Editorial Board shall serve as Chairman during the last year of his term. Vacancies on any Editorial Board resulting

from expiration of a term or inability of a member to serve shall be filled by appointment by the Governing Board which in such action shall maintain appropriate representation as specified hereinafter.

Section 3. The *Annals of the Entomological Society of America*. The members of the Editorial Board of the ANNALS shall be selected to provide representation as follows:

Division I, Basic Entomology—3 members  
Division II, Applied Entomology—2 members

Section 4. *Journal of Economic Entomology*. The members of the Editorial Board of the JOURNAL shall be selected so as to provide representation as follows:

Division I, Basic Entomology—2 members  
Division II, Applied Entomology—3 members

Section 5. The *Bulletin of the Entomological Society of America*. The BULLETIN shall include items of current and timely interest, such as editorials, special addresses presented before the Society, proceedings of meetings, lists of members, current notes, obituary notices, etc. Policies affecting the BULLETIN shall be determined by the Governing Board. The Executive Secretary shall serve as Editor of the BULLETIN.

Section 6. The *Thomas Say Foundation Monographs*. The purpose of the Thomas Say Foundation is the publication of works of a monographic or bibliographic character on the insects of North America. The Trustees of the Foundation, who shall also constitute the Editorial Board, shall be selected from the membership in order to provide representation as follows:

Division I, Basic Entomology—4 members  
Division II, Applied Entomology—1 member

The funds of the Thomas Say Foundation shall be maintained by the Executive Secretary in a separate account and used solely for expenses involved in the publication of Thomas Say Foundation Monographs.

Section 7. *Entoma*. ENTOMA is a biennial directory of manufacturers of insecticides, fungicides, spray equipment, and other items of interest in connection with pest control. The Editor of ENTOMA shall serve for four years. The Editorial Board of ENTOMA shall include representation as follows:

Division I, Basic Entomology—1 member  
Division II, Applied Entomology—4 members

Section 8. *Index of American Economic Entomology*. The publication of the INDEX shall be arranged for by the Governing Board.

## ARTICLE VI

### Standing Committees

Section 1. *Terms of Office and Rotation*. Unless otherwise indicated, members of standing committees shall serve for periods of 3 years each and the terms of office shall be arranged so that one-third shall expire each year.

Section 2. *Election of Members of Standing Committees*. The Governing Board shall serve as the Nominating Committee to propose a slate of candidates for election to positions on standing committees not filled in other ways. In the case of the Committees on Entomological Nomenclature, on Common Names of Insects, and on Insecticide Terminology and Reference Standards, the selection of the candidates shall be made from lists of three names proposed for each committee vacancy by the Chairman of the respective Committee. The candidates nominated by the Board, together with

any nominated from the floor, shall be voted on at the annual meeting. The Board shall designate which member of each standing committee shall serve as chairman.

Section 3. The *Program Committee* shall consist of three members. This committee shall arrange the program of the annual meeting, and is authorized to adjust sectional and main programs to the advantage of the greatest number of the members.

Section 4. The *Committee on Membership* shall consist of six members, and ordinarily shall include a representative from each Branch. This committee shall actively encourage membership in the Society. It shall review all applications for active and student membership and refer them to the Governing Board, with its recommendations.

Section 5. The *Committee on Entomological Nomenclature* shall consist of nine members. Its functions are to initiate or to further action tending to stabilize the nomenclature of insects, and to give advice on problems of scientific nomenclature that may be submitted to it.

Section 6. The *Committee on Common Names of Insects* shall consist of nine members. This Committee shall receive from Society members proposals for new common names or changes in previously adopted names, or may initiate such proposals itself. It shall consider these as to need and appropriateness, modify them if advisable, and adopt them in behalf of the Society, if seven members of the committee vote in favor of them. Such action, however, shall not become final until the proposals have been brought to the attention of the membership through publication in the JOURNAL or BULLETIN or otherwise, and thirty days have elapsed. The committee shall consider any objections that may be made to the proposals within the thirty day period.

Section 7. The *Committee on Insecticide Terminology and Reference Standards* shall consist of six members. This committee shall promote uniformity of terminology applied to materials used in the field of chemical and physical control of insects and shall further the preparation and distribution of E.S.A. Insecticide Reference Standards in line with a policy set by the Governing Board.

Section 8. The *Committee on Insect Surveys* shall consist of eight members, who shall be elected for four year terms so arranged that two members shall retire each year. The committee shall encourage participation in the conduct of insect detection, service and informational surveys and foster the development and adoption of uniform procedures for such.

Section 9. The *Committee on Finance* shall consist of three members to serve for three year terms on a rotating basis. Its duties shall be to study matters affecting the financial and business activities of the Society and advise the Governing Board thereon.

Section 10. The *Committee on Professional Training, Standards and Status* shall consist of six members to serve for three year terms on a rotating basis. The primary duty of the Committee is to provide long-range guidance to the Society in matters relating to professional training, standards and status for entomologists, and to serve as the medium through which needed improvements in these matters can be officially initiated.

## ARTICLE VII

### Councilors, Representatives, etc.

Section 1. The President shall appoint Councilors of the American Association for the Advancement of Science, a Representative of the National Research Council, and other representatives or delegates as occasion may require.

## ARTICLE VIII

### *Meetings, Quorums, Voting, etc.*

- Section 1. Fifty (50) voting members shall constitute a quorum at a called meeting for the transaction of the business of the Society.
- Section 2. In voting at meetings or in mail balloting a majority of votes cast shall be considered as deciding in all matters, unless otherwise specified in the Constitution or By-Laws.
- Section 3. Nine members of the Governing Board shall constitute a quorum for the transaction of its business.
- Section 4. In matters of procedure not stipulated in this Constitution and By-Laws the authority followed shall be Roberts Rules of Order.

## ARTICLE IX

### *Miscellaneous*

- Section 1. The Secretary shall discontinue sending Society publications to members delinquent in the payment of dues and shall drop from the rolls after twenty days' notice any member one year in arrears. Upon payment of arrearage former members that have been dropped shall be reinstated.
- Section 2. Members shall not use the name of the Society for financial advantage.
- Section 3. Members in good financial standing have the right to resign. A member may be dropped from membership by action of the Governing Board for conduct which in any way tends to injure the Society or to affect adversely its reputation. In any such case, the member shall have the privilege of appearing before the Governing Board before final action is taken.
- Section 4. The Society shall not be responsible for statements or opinions advanced in papers or in discussions at meetings of its Divisions, Branches, or Sections or printed in its publications.

## ARTICLE X

### *Amendments to By-Laws*

- Section 1. Changes in these By-Laws may be made by a two-thirds vote of any meeting or by a two-thirds majority of all votes cast in a mail ballot: Provided, that notice in writing of the proposed amendment shall have been sent to every active member at least one month before the date of the meeting at which it is to be considered, or the last date for the receipt of the ballots in case of mail vote.

## Journal of Insect Physiology

The *Journal of Insect Physiology* will commence publication in March, 1957. This is an international journal which plans to bring together in one place the best contributions on insect physiology from all parts of the world. The Journal is to be published by Pergamon Press in London. Manuscripts should be sent to one of the following editors:

Prof. V. G. Dethier, Department of Biology, The Johns Hopkins University, Baltimore, Maryland, U.S.A.

Dr. H. E. Hinton, Department of Zoology, University of Bristol, Bristol, England.

Prof. M. Lüscher, Zoologisches Institut der Universität Bern, Bern, Switzerland.

## Reprints

Current prices for reprints from publications of this Society have been published as follows: *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA* 49(5): 509, September, 1956; *BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA* 1(4):35, December, 1955; *JOURNAL OF ECONOMIC ENTOMOLOGY* 49(4): 577, August, 1956. The prices apply to reprints ordered prior to publication of a given issue of the *ANNALS* or the *JOURNAL OF ECONOMIC ENTOMOLOGY*.

We place all reprint orders on hand at the time the page proof of a given issue is returned to the printer. If we find papers for which no reprint orders have been placed, we advise the author or his organization by telephone or air mail. If he or his employers desire reprints, they must then place the order by telephone or telegraph. A confirming order may be sent by mail.

If orders are placed after the type of a given issue is dead, or for reprints from back issues, these can be filled in most cases by supplying offset reprints. These, however, can be obtained only in lots of 100 or more and at prices higher than those referred to above. We will furnish quotations upon request. The 50 per cent discount to members of the Society paying for reprints personally which applies to the current prices noted above does not apply to offset reprints.

Insecticide manufacturers or other firms or institutions who have occasion to frequently place quantity orders for reprints of articles (such as those mentioning their products) may take advantage of the current prices previously noted by the following procedure:

1. Authorize an employee, who is also a member of this Society, to handle reprint orders and advise us of the person so designated.
2. Page proof of the *ANNALS* or the *JOURNAL OF ECONOMIC ENTOMOLOGY*, or both if requested, will be sent special delivery as soon as printed.
3. The authorized person is to look through the page proof as soon as received and place the order by telephone or telegraph with a confirming order by mail.
4. As for other current orders, 50 reprints of a single article is the minimum order.

All reprint orders from current issues are F.O.B. Columbus, Ohio for the *ANNALS* or Menasha, Wisconsin for the *JOURNAL OF ECONOMIC ENTOMOLOGY*. Offset reprints are F.O.B. Washington, D. C.

## Membership Challenge

All of the entomologists on the staff of the Division of Biological Sciences of the University of Utah are members of the Entomological Society of America. In addition, all of the graduate students majoring in entomology are members or student members. In the light of this splendid record the following was sent to the Editor.

"We hereby declare ourselves members of the Entomological Society of America Hundred-percenters and would like to issue a challenge through the *BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA* to other institutions to join us in this exclusive club," George F. Edmunds, Jr., Associate Professor of Zoology, and Don M. Rees, Professor of Zoology and Head of Department.



## HISTORICAL SKETCH OF THE THOMAS SAY FOUNDATION

By J. J. DAVIS

At the eighth annual meeting of the Entomological Society of America (1913) Nathan Banks submitted the following communication (ANNALS ENT. SOC. AMER. 7(1):107, 1914).

"Inasmuch as there is no independent society in this country able to publish large works on Entomology, and since there are even now manuscripts awaiting printing, and with time there will be more, I suggest that the Entomological Society of America found such a society. This Society to be known as 'The Thomas Say Society.' Its object to publish catalogues, revisions, and monographs of North American insects. That it be authorized to solicit and collect money for a permanent fund, the interest on which shall be used for the printing of said works. That the Society shall be controlled by a board of five entomologists, chosen by the Executive Committee of the Entomological Society of America. Each member to serve five years, the first board to have one member for one, two, three, four, and five years, thereafter one selected each year. That all money received for sale of publications be added to the permanent fund. That said board of control shall select whatever officers they deem necessary and have authority for accepting articles for printing and disbursement of funds."

As was brought out, the primary purpose was to permit the publication of monographs and catalogues on insects, which do not have a sales demand sufficient to be attractive to commercial publishers.

A committee (Nathan Banks, chairman, H. H. Lyman, and Morgan Hebard) was appointed by the President of the Society to consider the proposal.

A report was presented by Nathan Banks and Morgan Hebard (Mr. Lyman having died during the year) at the ninth annual meeting (1914) of the E.S.A. (ANNALS ENT. SOC. AMER. 8(1):108 1915) as follows:

"The Committee on the Thomas Say Society report as follows: They find there is an increasing demand for the means of publication of larger works on American systematic entomology, and they therefore recommend to the Entomological Society of America the following plan for the issuance of such works under the title of 'The Thomas Say Foundation.'"

"To accomplish this purpose the Society shall appoint a temporary committee of five members who shall have charge of all matters concerning the Foundation until more definite plans are adopted by the Society.

"This Committee shall consist of an Editor, a Treasurer, and three other members, all of whom shall be appointed by the Executive Committee of the Society. They shall be authorized to solicit, hold, and spend subscriptions and funds for the purpose of obtaining a permanent fund for this Foundation and for the issuance of such works on American Systematic Entomology as the Committee shall deem worthy of publication.

"They shall also be empowered to determine the form, character, price and other details of the publication. The Treasurer of the Entomological Society of America be authorized to pay bills not to exceed fifty dollars for the preliminary expenses of presenting this matter to the entomological public.

"This Committee is charged with making a report of their operations and expenditures to the Executive Committee of the Society at its next Annual Meeting.

"To put this plan into definite shape the Committee would suggest the following amendment to the

Constitution of the Entomological Society of America, which shall be known as Article VIII of said Constitution:

### ARTICLE VIII.

"Section 1. Name—This fund, the publication, and the committee shall be known as 'The Thomas Say Foundation.'

"Section 2. Purpose—The purpose of this Foundation is for the publication of works of a monographic or bibliographic character on the insects of North America.

"Section 3. Publication—Each publication shall be a volume complete in itself, and numbered consecutively.

"Section 4. Committee—This Committee shall consist of six members, four of them to be elected by the Executive Committee of the Society, two retiring annually, and an Editor and a Treasurer to be designated by the Executive Committee.

"Section 5. Powers—This Committee is empowered to determine all matters concerning the publication.

"Section 6. Funds—They are also empowered to solicit, hold, invest, and expend funds committed to their care; only the interest from any endowment fund to be available.

"Section 7. Responsibility—The Society shall be in no way responsible for debts contracted by this Foundation, unless previously authorized by the Executive Committee.

"Section 8. Reports—The Editor and Treasurer shall present a report of their operations and expenditures to the Executive Committee at each Annual Meeting, and the accounts of the Treasurer shall be audited by the Auditing Committee of the Society. These reports shall be published as a part of the proceedings of the Executive Committee of each Annual Meeting."

The report was adopted and the Executive Committee appointed a temporary committee consisting of J. M. Aldrich, Nathan Banks, Morgan Hebard, A. D. MacGillivray, and E. P. VanDuzee. This committee elected A. D. MacGillivray editor and Morgan Hebard treasurer.

At the tenth meeting of the E.S.A., December 30, 1915, the committee reported having submitted a request for funds and received \$170.00 from seventeen contributors. It was hoped to secure a fund of \$20,000.00, the interest from which, along with sale of volumes, would permit publication of volumes at reasonably frequent intervals. The committee for 1916 included P. P. Calvert, editor; Morgan Hebard, treasurer; J. M. Aldrich, Nathan Banks, A. D. MacGillivray, and E. B. Williamson.

The report of the Foundation presented at the eleventh annual meeting of the E.S.A., Dec. 27, 1916 (ANNALS ENT. SOC. AMER. 10(1):101 1917), reported the resignation of P. P. Calvert as editor and appointment of J. M. Aldrich as his successor. During the year (1916) the first volume of 1000 copies was published at a cost of \$456.00 (this included binding of only 200 copies). This volume was: Vol. I, Sarcophaga and Allies, by J. M. Aldrich, 1916. Succeeding volumes were published as follows:

Vol. II, Plecoptera or Stoneflies of North America, by J. G. Needham and P. W. Claassen. 1925.

Vol. III, Plecoptera Nymphs of North America, by P. W. Claassen. 1931.

Vol. IV, Blowflies of North America, by D. G. Hall. 1948.

Vol. V, Aphids of the Rocky Mountain Region, by M. A. Palmer, (1952) 1953.

At the 26th annual meeting of the E.S.A. (Dec. 1931), J. J. Davis was appointed editor to succeed J. M. Aldrich. Davis continued as treasurer which office he had held since 1923. With the consolidation of the two national societies (Ent. Soc. Amer. and Amer. Assn. Econ. Ent.) the treasurership was taken over by the Executive Secretary of the new society, namely the Entomological Society of America.

Until recent years the Foundation has been dependent on sale of volumes to publish additional volumes. Publication of volumes IV and V was made possible from liberal donations, as follows: W. S. Blatchley, \$2,000.00; Julius Hyman, \$3,000.00; Hercules Powder Company, \$500.00.

All five volumes published by the Foundation are still available from the Washington office of the Entomological Society of America.

### Science Abstracting

Scientific literature is so vast that no specialist can himself even reconnoitre more than an insignificant fraction of its total range. Yet unless each specialist can count on becoming aware of information and data in collateral fields that might be useful to him, he cannot cultivate his own field efficiently.

This being so, an elaborate apparatus of abstracts and other bibliographical or "secondary" publications has taken shape for providing signposts to the "primary" ones. The development of these, so as to realize their fullest possibilities as an aid to the progress of science as one international whole, gives rise to many problems. To help in solving them, Unesco organized in 1949 an International Conference on Science Abstracting which made a series of practical recommendations which since that date have led the way, directly and indirectly, to notable improvements. Among these has been, for instance, the establishment of the ICSU Abstracting Board affiliated to the International Council of Scientific Unions which co-ordinates, assists and quickens the operation of existing services.

The provisional committee set up by Unesco immediately after the Conference was later reorganized with the larger scope indicated in its present title, which is International Advisory Committee for Documentation and Terminology in Pure and Applied Science. At its meeting in London on 17-19 November 1955 this Committee made further recommendations, embodied in a Report now available from the Secretariat of Unesco. Some of these relate to continuation of various efforts which have already yielded useful results: for instance, to extending the contents and expanding the circulation of the *Monthly Bulletin on scientific documentation and terminology* which (though not formally published) is mimeographed and circulated to give news of developments conducted under the Committee's advice and to stimulate interest in them; to the accrediting of correspondents in countries which have no affiliated national committees; to encouraging the compilation of lists of scientific periodicals and to encouraging the adoption of the *Guide for the preparation and publication of synopses*. This last is a leaflet which Unesco supplies on request, in any of four languages (English, French, German, Spanish) for editors of scientific journals to pass on to contributors; several thousand copies of it have been distributed, and this action has helped to reduce the time-lag between the appearance of original articles and their referencing in abstract journals.

Others of the recommendations are new. Thus the Committee "would welcome any possible action being taken to encourage editors of scientific and technical

abstracting and indexing services to include therein an increasing number of references to patents and unpublished technical reports." Further, it recommends that Unesco should urge them "to indicate in their publications the principles whereby they select material for notice," the expectation being that such indication along with studies of how different categories of scientists do in fact utilize the bibliographical aids at their disposal, would assist in making the whole system more efficient.

Not all of the recommendations relate to abstracts. There are, for instance, others to the effect that Unesco should collaborate in the evaluation of the various methods now being developed for making information retrievable by coding it in electronic machines or on punched cards (the format of which, incidentally, the Committee considers it would be desirable to standardize).

Yet another recommendation stresses the importance of the terminological and lexicographical work which Unesco is encouraging in many fields of science and engineering, which is described in a chapter of its report on *Scientific and Technical Translating* (and on other possible means for reducing language barriers) now completed and due to appear shortly.

### After 100 Years

Perez (Pete) Simmons of the Stored Products Insects Laboratory, Fresno, California, contributed the following. It is summarized and partially quoted from the *Manuscript Journal of a Voyage from Smyrna to Boston in the Bark EASTERN STAR, Daniel D. Baker, Commander; Edward Baker, Mate*, which was written by the latter in 1854. *Semper Insecta!*

After anchoring at Smyrna on September 10, 1854, the *Eastern Star* began taking on figs September 30. On October 2nd 300 boxes of raisins were loaded. The author bought 80 drums of figs on his own account, "paying something over \$28.00 for them."

On October 10th the *Eastern Star* cleared for Boston. Mr. Baker's entry on the 14th was as follows: "Our decks, staterooms, and cabins are literally covered with worms from the figs, and they reach the most secret places covering everything with a kind of web which they finally envelope themselves in and retire from the world in state. My berth swarmed with them, and bed bugs innumerable."

The Straits of Gibraltar were reached October 30, twenty days out of Smyrna. On November 15 Mr. Baker recorded that the cabin had been kept closed because of heavy seas, "the weather being rather warm it has been a most uncomfortable hole of late, and all our berths are swarming with bed bugs. The walls of my room are literally covered with the remains of those I have 'squashed'."

Boston was reached November 24th. The *Eastern Star* "made the shortest passage of anything, from Smyrna this fruit season." The *Newsboy*, *Mimosa*, *Voyager*, *Sultana*, *Racehorse*, *Sam Slick*, *E. H. Yarrington* and *Mystery* all made slower time. The author ate Thanksgiving dinner at home in Duxbury, Massachusetts.

Thus endeth an account of the race of the fig ships in the year 1854. No doubt all the good little boys and girls in eastern Massachusetts enjoyed worm-eaten figs for Christmas, whereas the ones that were less fortunate had to be content with apples—also wormy. Them was the good old days!

"Cap'n. Ed" Baker followed the sea for many years. When he wrote about the voyage that is the subject of this review he was 22 years old. He was the father of Mary Baker (Mrs. Dwight F.) Barnes of Fresno, California. Dwight Barnes is a well-known member of this Society.

## POLLINATION AS A RESEARCH FIELD IN ENTOMOLOGY

By GEORGE E. BOHART

*Entomology Research Branch, Agricultural Research Service, U.S.D.A.*

At first glance insects appear to play a more active role than flowers in insect-flower relationships. However, it doesn't take long to discover that they are merely the "unwitting tools" of flowers in the pollination process. They are bent to the "will" of flowers by offerings of food, perfume, and bright colors. The arrangement and mechanism of the floral parts usually force them to effect pollination and frequently limit the "clientele" to a few select visitors. It is small wonder that the early students of pollination were botanists. However, in the tradition of their times, pioneer botanists of the 18th and 19th centuries, such as Koelreuter, Sprengel, Darwin, Muller, and Knuth, were not afraid to tackle such distant scientific fields as entomology and ornithology for answers to pollination problems.

Interest in insect pollination was first centered on the adaptations of flowers for insect visitation and pollination. Charles Robertson, a botanist in Illinois in the late 19th century, was one of the first to develop theories concerning the effect of flowers on the evolution of their insect visitors. Robertson eventually became so engrossed with insect pollinators that his later contributions were largely entomological and he became known as an outstanding hymenopterist.

In the first two decades of the 20th century a series of experiments and polemics on the senses of insects renewed scientific interest in the relationship between flowers and insects. Most of the investigators in this field, such as Plateau, Forel, and von Frisch, were animal physiologists using the orientation of insects to flowers for explanations of various psychological and physiological principles. In 1922 the botanists Clements and Long, in a book entitled "*Experimental Pollination*," tried to correlate the behavior of pollinators with floral characteristics. They stressed the value of experimental techniques in such studies and pointed out that the earlier botanists had drawn their conclusions largely from accumulated natural-history observations.

The economic significance of insect pollination received only sporadic attention prior to the last quarter-century. Darwin was the first scientist to emphasize the economic value of insect pollinators by demonstrating the widespread occurrence of such phenomena as self-sterility, hybrid vigor, and the dependence of many economic plants on insects for cross-pollination. Darwin also popularized "applied pollination" with his famous statements concerning the supposed relationship between old maids, cats, mice, bumble bees, and red clover.

Growers of Smyrna figs in the Mediterranean area practiced caprifrication for centuries, but usually without knowing that in the process they were introducing fig wasps to pollinate the flowers and hold the figs on the trees. When James Shinn, a California orchardist, found that all the fruit dropped off his Smyrna fig trees, he visited Italy to study fig pollination and in 1890 successfully introduced fig wasps to the New World. This was one of the earliest scientific studies of insect pollination to be followed by successful application of the findings. An even earlier case was the successful introduction of three species of bumble bees from England to New Zealand in 1885 to improve red clover pollination.

During the first 20 years of this century, horticulturists, agronomists, and a few entomologists

gradually made it clear that insect pollination increased the quality and quantity of many fruit and seed crops. However, efforts to improve existing pollination conditions were few and far between. Sladen, who developed an artificial domicile to increase bumble bees in 1906, may have been the first economic entomologist to enter the field. Lindhard, a German plant breeder, attempted in 1920 to put honey bees to better use by developing a short corolla-tubed variety of red clover which he called *bee clover*.

In the 1930's apiculturists such as Dunham, Hambleton, Farrar, and Vansell made a concerted effort to demonstrate the pre-eminent position of the honey bee as a pollinator. They also conducted some of the first research on methods to increase the efficiency of honey bees. Their aim was to raise insect pollination from the level of mere acceptance by the farmer of the pollination that came his way to one of purposeful cooperation between beekeepers and the growers dependent on bees.

The early botanists compiled long lists of insect pollinators, and for over a century a number of insect biologists such as Fabre, Ferton, and Rau published extensively on the biology of flower-visiting insects. However, Brittain, who in the 1930's wrote a series of papers on apple pollination in Nova Scotia, was one of the first to integrate research on insect biology with pollination. As a contribution to crop pollination he published on the nesting habits and distribution of native species of bees. In addition, he evaluated the relative importance of the various species as pollinators and estimated the numbers of each that would give proper pollination.

Since 1940 increased agricultural emphasis on high yields per acre has led to expanded research on insect pollination, especially along applied lines. Most of this work is now being carried on by entomologists, but agronomists and horticulturists, often in cooperation with entomologists, are making many important contributions. Many of the present contributors, such as Butler in England, Jamieson in Canada, and Todd in the United States, are primarily apiculturists. However, entomologists without special apicultural leanings are also entering the field. Medler in Wisconsin, Linsley in California, and Hobbs in Canada are among the many who could be cited.

In spite of the present-day emphasis on applied research in insect pollination, farmers have been slow to translate theory into practice. In the more concentrated apple-growing districts, honey bee colonies have been rented for pollination for at least 20 years. However, even where financial arrangements are involved, the use of bloom-stage applications of organic phosphorous insecticides is discouraging more and more beekeepers from placing their colonies in orchard areas. Honey bee rentals for legume pollination have been tried in many States since World War II, but in most areas they have been discontinued. Many things have been responsible including failure to take care of other factors in seed production and difficulties in negotiating satisfactory contracts. Most of the commercial pollination of legumes is now taking place in the alfalfa-seed fields of California where honey bees are particularly effective. In spite of such limited progress, I am convinced that there is a great poten-



tial for successful colony rentals in many States and for many crops.

The recent increased interest of alfalfa-seed growers in the use of alkali bees is an encouraging sign. Several growers in widely scattered areas of the Intermountain States have even succeeded in establishing large nesting populations by following recommended procedures.

There remain many unsolved pollination problems in such well-studied crops as alfalfa and red clover. This is even more true of relatively little-studied crops such as lupine, lespedeza in the Southeast, and specialty crops such as tung and avocados. There may be a great future for hybrid seed in many crops now produced by self-pollination. Cotton and tomatoes, for example, produce best as hybrids. The need for developing satisfactory insect pollination of crops long bred for self-pollination represents a challenge for both plant breeders and entomologists.

Since insect pollination involves an intimate inter-relationship between insects and plants, a close cooperation between entomologists and plant scientists is highly desirable. Fortunately this cooperation is increasingly apparent in scientific meetings and publications, as well as in actual field research. At the Legume Seed Research Laboratory in Logan we believe that the close cooperation existing between entomologists, plant scientists, and soil scientists of the State Experiment Station and the Federal Government has been highly beneficial and should lead the way to similar arrangements in other parts of the country.

The attractions of pollination as a research field in entomology are many. There is plenty of opportunity for fundamental ecological studies on species of insects that have peculiarly fascinating lives and habits. For the entomologist who really loves his insects (and there are such individuals) there is deep satisfaction in working "for 'em" instead of "agin' em." Finally, there is a special feeling about working in the bright sunshine with blossoming crops amid humming insects that is widely appreciated but difficult to describe.

I am not going to recommend that every prospective entomologist lay down his spray gun and don a bee veil. Employment opportunities in pollination research are not that numerous. About a dozen government entomologists in the United States and Canada are working full time on pollination. In addition, several States have full-time pollination projects, but only on a year-to-year basis. However, most of these positions have been created in the last ten years and there is likely to be further expansion. There is certainly plenty of opportunity for college teachers to carry on part-time research projects in pollination. To them, I say "come on in, the water's fine."

### Budapest Natural History Museum

The following is an excerpt from a letter from Budapest, Hungary, received by J. F. Gates Clarke, Curator, Division of Insects, U. S. National Museum.

"Our museum [Magyar Nemzeti Múzeum, Természettudományi Múzeum] suffered terribly. The Mineralogical, Paleontological and Geological Departments are utterly destroyed, with hundreds of thousands of specimens, and almost as many books. Of the Zoological Department, the Ornithological, Ichthyological, Herpetological, Mollusca, Diptera (except Acalyptrata), Trichoptera, Odonata, Lower Invertebrate Phyla Collections are also absolutely wiped out, with only the charred and blackened walls

standing. Tens of thousands of types lost forever, countless specimens burned. We were trying to save, and fought a losing battle with the flames, all in vain. It was indescribable." And there are so-called intellectuals who defend communism!

### Student Membership

When the Constitution of the Entomological Society of America was adopted in 1953 a provision was included for Student membership. (Article III, Section 3). In 1955 it was necessary for the Governing Board to take interim action on this matter. A *Committee on Student Membership* was appointed by President Decker to study the matter. This committee consisted of J. C. Gaines, C. W. Kearns and R. H. Painter, Chairman. Their recommendations were adopted by mail vote of the Governing Board and published as rules for student membership in the September 1955 BULLETIN. Student membership application blanks, upon which the rules are detailed, were printed in quantity and widely distributed.

The 1956 Governing Board at the New York meeting adopted the following changes in these rules:

Rule 2. The first part of this rule now reads, "A student is defined as a junior, senior, or graduate student . . ." Delete "a junior, senior" and substitute "an undergraduate." This will permit the occasional freshman or sophomore, who has firmly decided upon entomology as his life profession, to join the Society if he so wishes.

Rule 3. The second sentence which reads "The certifier must be a full Entomological Society of America member in good standing." This sentence is to be deleted. Membership committeemen may encounter situations where this deletion will be of help.

Since the present Student Membership blanks are widely distributed these may be used until such time as a new supply is printed.

The Washington office would very much appreciate advice from Department Heads when student members are no longer in residence.

### South Carolina Entomological Society

The South Carolina Entomological Society, Inc., at their last annual meeting on March 29, 1956 in Columbia, South Carolina authorized the following resolutions be presented to the Entomological Society of America:

1. *Whereas*, entomologists have been appointed to the Building Research Advisory Board, BE IT RESOLVED that the South Carolina Entomological Society, Inc., urges the Entomological Society of America to promote the appointment of professional entomologist to any committee or board resulting from the recommendations the Building Research Advisory Board makes to the Federal Housing Authority.
2. *Whereas*, the recommendation of the Building Research Advisory Board presented to the Federal Housing Authority to revise applicable minimum property requirements could possibly create positions which would require training in the profession of entomology, BE IT RESOLVED that the South Carolina Entomological Society, Inc., urges the Entomological Society of America to promote the appointment of professional entomologists to these positions. BE IT FURTHER RESOLVED, that the South Carolina Entomological Society, Inc., urges the Entomological Society of America to promote entomology as a true profession.

## Hungarian Escapees with Scientific, Scholarly, or Professional Training

In cooperation with the President's Committee for Hungarian Refugee Relief the National Academy of Sciences—National Research Council has established an office at Camp Kilmer, New Jersey, to help identify and place individuals having advanced scientific or other scholarly or professional training among those who have escaped from Hungary and sought safe haven in this country.

Escapees are arriving each day at Camp Kilmer by plane and ship. Many possess high scholarly or professional qualifications. Vice President Nixon's recent report states that more than 1,000 of the 9,253 who had arrived in this country by December 31 are "professional, technical, and kindred workers." This proportion may well be encountered also among the thousands who are now on their way or have arrived since December 31. Furthermore, it is quite possible that additional thousands will be admitted beyond the present authorized limit of 21,500.

The Academy—Research Council is endeavoring, in cooperation with other scholarly and professional organizations, to assist in welcoming the escapees and aiding them to find suitable placement where they can make full use of their talents to their own satisfaction and to the benefit of the institutions and communities with which they become associated.

To that end the Academy—Research Council will be glad to be advised of openings that may be available for persons of advanced training in any field of scholarship or the professions, particularly openings that require the doctorate or an advanced engineering degree. Every effort will be made to bring such opportunities to the attention of those among the Hungarians who appear to be qualified, and to provide a channel for direct contact between the individuals and the institutions where the openings exist.

Because of the limited facilities at Camp Kilmer it is necessary to place the escapees as rapidly as possible. An effort will be made, however, to bring known openings to the attention of all available individuals who appear to be qualified and to give each individual an opportunity to consider a variety of employment possibilities. The American Council for Emigrees in the Professions is cooperating with the Academy—Research Council in this effort, as are other national organizations.

Arrivals in this country from Hungary are in two categories, those with visas for immigration (some 6500) and those admitted on a "parolee" basis.

In the first case the law requires a sponsor who will guarantee that for a period of one year the individual will not become a public charge. In the second case the legal requirement is less strict, but some degree of responsibility must be assumed. The necessary arrangements in both cases are usually made in the community where the individual is placed, often with the help of local welfare agencies.

Some language training courses for escapees who do not speak English have been arranged and others are being considered. Many who do not speak English speak French or German.

In any information provided with respect to openings the following items should be included:

1. Name and location of institution
2. Description of position available; field of work; nature of duties (e.g., teaching, research, development, engineering, management)
3. Level of salary or other support
4. Estimated starting date and duration of employment
5. Language requirements, and availability of local training in English is necessary
6. Name, address, telephone of your representative for further negotiations
7. Housing available (some escapees are accompanied by wife and children)
8. Group or organization willing to act as sponsor, if known
9. This information previously given to.....
10. Other information that you consider helpful.

Under existing circumstances placement must be handled rapidly. To be of greatest assistance, therefore, information on employment opportunities should be submitted promptly, and should be kept up to date as circumstances change. Information should be sent in duplicate, the original to National Academy of Sciences—National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C., attention: Office of Scientific Personnel and a carbon copy to National Academy of Sciences—National Research Council Office c/o President's Committee, Building 1305, Camp Kilmer, N. J.

Telephone numbers: Washington: EXecutive 3-8100, extension 226 or 266; Camp Kilmer: CHarter 9-5883, extension 22 or 23, New Brunswick, N. J.

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## Membership Application Blanks

DO YOU KNOW AN ENTOMOLOGIST WHO IS NOT A MEMBER OF THE ENTOMOLOGICAL SOCIETY OF AMERICA? IF SO OFFER HIM THE OPPORTUNITY OF JOINING, BY HAND OR BY LETTER. WE WILL SEND APPLICATION BLANKS TO ANY MEMBER OR INTERESTED PERSON WRITING US.

## A TRIBUTE TO DR. ERNEST NEAL CORY

By P. D. SANDERS, Editor *The Southern Planter*

I want you to know at the outset how happy and pleased and honored I am to be a part of this little party this evening, honoring one who has rendered truly distinguished and meritorious service to the science of agriculture.

If in my remarks on this occasion I appear partial to our guest of honor, I hope you will forgive me. It has been my happy privilege to know and work intimately with Dr. Cory for almost thirty-five years and I have come to admire him as a scientist, teacher and friend as few men in America. I find it difficult to divorce myself from his sterling qualities of character, comradeship, and accomplishments in his chosen field.

I'm very much like an old uncle of mine in Mississippi who is said to have written a history of the War Between the States. He was engaged in that tragic conflict. Fortunately, the book was never published. But he entitled his manuscript, *An Unbiased History of the Civil War From the Southern Viewpoint!*

We have failed in the past to recognize and honor appropriately our agricultural scientists, and to award them for the great contribution they have made to the American way of life. They have enabled us to shift in the past hundred years from an agricultural to an industrial nation with the overwhelming majority of our people today living in towns and cities. This has distinguished our democracy and brought us world-wide renown.

In 1830, a little over a hundred years ago, 90 per cent of the American people lived on farms. It took nine families living on the farm to produce enough surplus to feed and clothe one family living in the city. But as we learned through scientific research and universal education to make two blades of grass grow where one grew before; as we improved our feeding, breeding and managing practices, and perfected our transportation and refrigeration systems, it was possible for fewer and fewer people, living on the land, to feed and clothe more and more people living in the cities.

By 1900, only 42 per cent of our people were farmers and today just 13 per cent of the people of the United States live on the land. The displaced population has left the farm and moved to town to build our cities, to work in shops, offices and factories and make this the greatest industrial nation in the world. The strength and security of this great country—in which we are all so proud—have been built upon an ever-increasing efficiency in agriculture to which the science of entomology and Dr. Ernest Neal Cory have made major contributions.

And to illustrate our dereliction in this connection, on the walls of the Hanover County Court House, in Virginia, not far from where I live, hang a score of beautiful oil portraits of famous men of that county. Hanging there is Patrick Henry, "the forest-born Demosthenes," whose oratory moved the American colonists to arms and independence. There is Henry Clay, "the mill boy of the Slashes," three times the nominee of his party for the Presidency of the United States who finally found consolation in "I had rather be right than President!"

There is the eloquent parson, Samuel Davies, founder of the Presbyterian Church in Virginia. He was later president of Princeton University. The portrait of Dr. Henry Rose Carter hangs there—scholar, scientist, humanitarian, who assisted Wal-

ter Reed in his discoveries on the mosquito as the carrier of yellow fever. General Williams Carter Wickham, celebrated soldier of the Lost Cause, and his distinguished son, Senator Henry T. Wickham, are represented. Admiral Hilary P. Jones, commander-in-chief of the U. S. Fleet and naval advisor at the Geneva Conference on Armaments, has a place.

Then there is Thomas Nelson Page, first author to picture vividly life of the Old South during the antebellum days. He was ambassador to Italy in World War I. Represented in this rare collection are lawyers, judges, soldiers, scholars, men of fame and fortune. Almost to a man, these immortal Virginians sprang from the soil and owned and operated some of the best farms in Hanover County. Yet not one of them is honored because he was a farmer!

In 1944, I had the high honor to serve as chairman of a national committee to publicize Thomas Jefferson's contribution to agriculture. Jefferson was the forest farmer and agricultural scientist of his day. When I went to Washington to accept my commission, I walked down into Potomac Park to view that magnificent monument to Jefferson, hoping to find some agricultural quotation with which to keynote my publicity campaign in the press, on the radio and in the movies. But I was shocked and chagrined to find no reference to agriculture, the farmer or country life in the elegant Thomas Jefferson Memorial.

Before agriculture gains economic equality with other groups, must we not first recognize the farmer and agricultural scientist officially? Of what other major group in America can it be said: "If you are to gain fame and fortune, receive the plaudits of your fellowman, yes, have your picture hang on the courthouse wall, you must seek success elsewhere?"

But in honoring Dr. Cory, where could we find a tongue so eloquent as to bring the message of the majesty of his life? The feebleness of pen, the poverty of phrase, prevent proper portrayal of the grandeur of his character and accomplishments. Is there a poet with lines so lofty as to tell the story of his ideals? Possession is not his pride. Science and service are his passion. He has stored up riches in the hearts and minds of men where "moths and rust" cannot corrupt nor "thieves break through and steal."

Ernest Neal Cory was born in New York State and moved with his parents as a boy to Maryland. He worked for a while in 1904 as a farm hand in Arizona and in 1905 as a real estate salesman in California, before entering the Old Maryland Agricultural College, from which he was graduated with a Bachelor of Science degree in 1909 and where he distinguished himself in athletics. He was captain of the football team in 1908. He received the Master of Science degree from the MAC in 1913. In 1926, he was awarded the Ph.D. degree from American University.

Meanwhile, in 1911, Dr. Cory achieved the crowning glory of his career. He was married to Elizabeth Colton Elder. She bore him three fine children—Ernest Neal, Jr., William Robert, and Jean Marie. They are all now graduated from college, happily married, and carving careers of their own. Ernest, Jr., attended St. John's College; Billy, Washington and Lee University, and Jean Marie, the University of Maryland.



Dr. Cory began his entomological work as Assistant Entomologist at the Maryland Agricultural College upon graduation in 1909. He successively served as Instructor, Assistant Professor, Associate Professor of Entomology and Zoology. In 1914, he was named Professor of Entomology, State Entomologist, and Experiment Station Entomologist, positions he has filled with distinction to the present time. In 1940, in recognition of his leadership in the field of adult education, Dr. Cory was made Assistant Director of the Agricultural Extension Service at the University of Maryland.

The honors that have come to Ernest Cory through his long and faithful service at the University of Maryland are too numerous to recite at this time. Suffice it to say, few American men of science can match the remarkable career of our guest of honor this evening—scholar, administrator, beloved Southern gentleman. One of the most attractive and popular men on the Maryland campus for a half-century, Dr. Cory has combined a keen scientific mind with a love of people to form a new type of teaching technique for college students and farmers alike. With it he has fired the imagination of thousands of young men and women, and created in them an eager thirst for scientific knowledge. It has enabled him to conduct scores of successful insect control crusades among farmers, fruit growers, gardeners and greenhouse men in his beloved Maryland.

"I use the cafeteria style of teaching," he once said to me. "I lay before my students and our farmers the best information on insects—their way of life and means of control—that my staff can muster. We attempt always to present the material attractively—orally or written. Then we put great emphasis on inspiring them to pick up what is best for each. We are rarely disappointed with the results." He has always said of his graduate students, "I strive to make men as well as entomologists of them; to develop character and personality along with scientific attainment."

The results of research in entomology which Dr. Cory has directed for more than a generation have been the foundation of the insect control program upon which much of Maryland's highly specialized agriculture and floriculture are built today. His work on diseases and parasites of the Japanese beetle has brought him international renown, and helped to relegate this pest to a position of secondary importance in many parts of Maryland. His innovations in spray calendars for tree fruits have been imitated all over the world. His proximity to Washington and his close liaison with the U. S. Department of Agriculture scientists have enabled Dr. Cory to establish many "firsts" in demonstrating new pest control practices under practical field conditions. He is a recognized authority on regulatory entomology.

Diligent in his desire always to improve professional entomology, Dr. Cory has given generously of his time and great talent to the several entomological societies and related groups. He served as President of the American Association of Economic Entomologists, 1947-48, and Secretary-Treasurer, 1936-46; President, Entomological Society of Washington, 1942; President, National Shade Tree Conference, 1941; Secretary-Treasurer and Business Manager, Journal of Economic Entomology, 1948-52. He is a member of Phi Kappa Phi, Sigma Xi, Kappa Alpha, and Omicron Delta Kappa fraternities, and the Cosmos Club of Washington.

Dr. Cory is author of more than 200 scientific articles and bulletins on economic entomology. An

accomplished artist, his water colors adorn the homes and offices of friends everywhere. Hobbies, other than water color sketching, include orchid growing, gardening, azalea culture and fishing.

The life and labor of Ernest Neal Cory, more than any man I know, seem to emulate the early settlers who came to our salubrious shores. They sank their roots deep into our rich loam and red clay soils. They made peace with nature. They felt somehow that agriculture was a superior type of economic endeavor; that a man could be a farmer and also a gentleman. They worked to dignify and glorify country life; to accent the "culture" in agriculture. They preferred being rather than becoming, gracious living to the accumulation of great riches. This is reflected in their well proportioned homes, good manners and fine family life. Those sturdy souls forged here a form of government and a way of life that are envied around the world.

Woven into this pattern of good living through the years has been that golden thread of tolerance and understanding, of mercy, pity and humility; that religious philosophy of life as enshrined in their Holy Record. These are virtues, my friends, in which this nation, and indeed, the world are desperately poor.

So I think Maryland and America can gain something of richness by looking backward as well as forward, and that is my plea to you this evening. Let's strive to breathe the breath of economic life into the rural community, keep a large and prosperous population on farms and in villages and small towns throughout this great land in which we live, preserve our rural heritage upon which this state and nation have grown great, reforest our timber lands, convert our eroded rundown hillsides into verdant pastures with "cattle grazing upon a thousand hills."

If we can do these things, we shall be in a position to render that service to democracy and to humanity at home and abroad for which God made us strong and great!

And so Dr. Cory as you prepare to "hang up the shovel and the hoe"; escape the frenzied world in which we live today; retire to green pastures "beside the still waters"; relax and enjoy your family and friends; take your paints and brush and palette to snare the pristine beauty of the countryside and preserve it permanently for lovers of nature to enjoy to eternity, I know I speak for all men of Maryland, wherever they may be this evening, when I say of you what the Psalmist said long ago, "His praises will always be on my lips."

Banquet Address:

Honoring Dr. Ernest N. Cory  
University of Maryland, College Park  
May 24, 1956

### Notice to Members

It would be very helpful if members corresponding with Society Officers or Chairmen of Committees on matters of concern to the Society, would always make it a point to see that copies, including copies of attachments, are furnished to the Executive Secretary of the Society, R. H. Nelson, 1530 P Street, N. W., Washington 5, D. C.

The Secretary is the "king-pin" in the Society, in that he is on the job full time and will see that all such matters are promptly routed through proper

channels. Such action will also give him the opportunity to keep his fingers on the "pulse" of the Society, at all times, and alert to its needs.

H. M. Armitage, President

### Zoological Nomenclature

#### Notice of proposed use of the Plenary Powers in certain cases for the avoidance of confusion and the validation of current nomenclatorial practice (A.(n.s.)33)

Notice is hereby given that the possible use by the International Commission on Zoological Nomenclature of its Plenary Powers is involved in an application relating to the under-mentioned name included in Part II of Volume 12 of the *Bulletin of Zoological Nomenclature*, which will be published on 30th November, 1956.

Notice is also given that the possible use of those Powers is involved in applications included in Part 12 (the final part) of Volume 11 of the same publication which will be issued on the same date.

##### (1) Application in Part II of Volume 12

- (1) Pieridae Duponchel, 1832, validation of family-group name (Class Insecta, Order Lepidoptera) (Z.N.(S.)289).

2. The present Notice is given in pursuance of the decisions taken on the recommendation of the International Commission on Zoological Nomenclature, by the Thirteenth International Congress of Zoology, Paris, July 1948 (see *Bull. Zool. Nomencl.* 4:51-56, 57-59; *ibid* 5:5-13, 131).

3. Any specialist who may desire to comment on any of the foregoing applications is invited to do so in writing to the Secretary to the International Commission (Address: 28 Park Village East, Regent's Park, London, N.W. 1, England) as soon as possible. Every such comment should be clearly marked with the Commission's File Number as given in the present Notice, and sent in duplicate.

4. If received in sufficient time before the commencement by the International Commission of voting on the application in question, comments received in response to the present Notice will be published in the *Bulletin of Zoological Nomenclature*; comments received too late to be so published will be brought to the attention of the International Commission at the time of the commencement of voting on the application in question.

5. Under the decision by the International Congress of Zoology specified in paragraph 2 above, the period within which comments on the applications covered by the present Notice are receivable in a period of six calendar months calculated from the date of publication of the relevant Parts of the *Bulletin of Zoological Nomenclature*. The Parts now in question will be published on 30th November 1956. In consequence any comments on the applications published in these Parts should reach the Secretariat of the International Commission at the latest by 30th May 1957.

Francis Hemming  
Secretary to the International  
Commission on Zoological Nomenclature.

15th November 1956

#### Notice of proposed use of the Plenary Powers in certain cases for the avoidance of confusion and the validation of current nomenclatorial practice (A.(n.s.)34)

Notice is hereby given that the possible use by the International Commission on Zoological Nomenclature of its Plenary Powers is involved in applications relating to the under-mentioned names included in Part 1 of Volume 13 of the *Bulletin of Zoological Nomenclature*, which will be published on 25th January 1957:

- (3) *Bithys* and *Chrysophanus* Hübner, 1818 (generic names of neotropical Theclids), suppression of (Class Insecta, Order Lepidoptera) (Z.N.(S.)802);
- (4) *Cephalomutilla* André, (1908), designation of a type species for, in harmony with accustomed usage (Class Insecta, Order Hymenoptera) (Z.N.(S.)902);

2. As above.

3. As above.

4. As above.

5. Under the decision by the International Congress of Zoology specified in paragraph 2 above, the period within which comments on the applications covered by the present Notice are receivable is a period of six calendar months calculated from the date of publication of the relevant Part of the *Bulletin of Zoological Nomenclature*. The Part now in question will be published on 25th January 1957. In consequence any comments on the applications published in this Part should reach the Secretariat of the International Commission at the latest by 25th July 1957.

Francis Hemming  
Secretary to the International  
Commission on Zoological Nomenclature.

21st January 1957

### THE JOURNAL OF ECONOMIC ENTOMOLOGY

Many inquiries received from authors during the past 2 years make it seem advisable to detail some explanations of some of the JOURNAL policies here. The Editorial Board of the JOURNAL feels that publication within 5 to 7 months after receipt of manuscripts (exclusive of Scientific Notes) is reasonably prompt and satisfactory. Some reasons for this are:

1. The printer requires the manuscript copy 70 days in advance of the scheduled date of publication.
2. Many authors request changes in their manuscripts after submitting them and sometimes withdraw them, apparently because of hastiness in preparation. It is obvious that such papers should be revised before they are put in type.
3. Most manuscripts are sent out for review after which the authors are given an opportunity to consider the reviewers comments. However, the date of acceptance assigned is that when the manuscript was first received unless major revisions or other factors cause unusual delay in return of the manuscript by the author. Unusual delays in obtaining reviews of manuscripts are much regretted but sometimes are unavoidable.

Some authors feel that "paid papers" delay the appearance of papers for which payment toward

publication costs is not made. Other authors are much disappointed if their papers do not appear in the next issue after they return their corrected galley proof to the editor. It is hoped that the following explanations will clear up these points satisfactorily:

1. The JOURNAL is published in 32-page signatures because the cost of publishing in smaller signatures by the George Banta Company is considerably higher and is not a good business practice. Therefore, if the inclusion of "paid papers" would delay publication of other papers beyond the 7 months referred to above, an additional 32-page signature is added to the issue involved. 2. Because some authors, usually through no fault of their own, do not return corrected galley proof of their papers as promptly as required, it is necessary to have more manuscript copy in type than can be included in the current issue in order to avoid delay in its appearance. Furthermore, it is necessary to furnish the printer more galley proof for page proofing than can be included in the current issue so that he can shift the order of and omit any of the articles near the end of the list, as necessary, in order to fill all of the space allotted for an issue to best advantage, and thereby keep publication costs as low as possible.

The JOURNAL continues to have an increasing international circulation. Our foreign readers must be kept in mind when editing the manuscripts. That will explain certain revisions which the authors might not have considered necessary. Much unnecessary correspondence and delay could be avoided if all authors would carefully consult the Publication Policies and Manuscript Rules and Suggestions which were published in Vol. 49(4): 575-77 (August, 1956) of the JOURNAL. Reference to the U. S. Government Printing Office Style Manual (January, 1953) is recommended. Manuscripts bearing the names of non-member authors should be accompanied by a statement clarifying the status of such authors.

Membership in the Society is increasing steadily and the amount of material received for publication in the JOURNAL has increased disproportionately, apparently because so many authors join in order to publish free in the Society's publications.

It would be surprising if no complaints or patient inquiries regarding the JOURNAL were received. We shall always solicit constructive criticisms for improving the JOURNAL because our first concern is publishing your work in the best possible and most economical way. This is a constant challenge. We hope we are meeting it successfully.

F. W. Poos, Editor

## ON MOUNTING DIPTERA FROM FLUID

By CURTIS W. SABROSKY

Entomology Research Division, Agr. Res. Serv.,  
U.S.D.A.

Laments to the effect that it is difficult or practically impossible to make satisfactory dry mounts of small Diptera from liquid preservatives have prompted this note on a technique that has given good results. The general method is not new but some repetition may be in order, because material being received for study shows that there is much room for improvement in mounting technique.

The method described here was used especially for the small acalyptate flies so often taken in numbers in sweeping (Chloropidae, Anthomyzidae, Sepsidae, etc.). Other small insects can be treated in the same way if it is necessary and desirable to do so. It should be understood, of course, that teneral specimens are unlikely to result in good preparations, regardless of method or care, so occasional failures are to be expected. NEVER mount flies directly from the liquid preservative; except for some sturdy,

well-sclerotized species, that almost inevitably results in more or less collapse.

The fundamentals of the technique are *thorough dehydration, hardening, and degreasing*. Briefly, the method is this:

(1) Drain off all preservative possible (commonly, 70-95% alcohol) and soak specimens in two changes of absolute alcohol.

(2) Drain off all absolute alcohol possible and soak in two changes of xylol.

(3) Place specimens in Syracuse watch crystal, pipette off excess xylol, and dry in beam of microscope lamp under the microscope. Drying can be speeded by touching the specimens with blotting paper after pipetting off the excess fluid.

(4) When thoroughly dry, mount with your favorite "glue."

Timing: This is purposely left vague, because it has been so. The minimum time in each change of fluid has not been determined because it is seldom an important consideration in this type of work. As for an optimum or maximum, there has been little if any difference in mounts from a considerable range in time of treatment. During a long task involving thousands of alcohol-preserved flies, bottles or vials with large numbers of specimens were left for several days in each step, the preparator keeping lots in different stages to provide him with a steady supply ready for mounting. Specimens may be left for some time in absolute alcohol. This is not true of xylol, which will make specimens brittle if left too long. Large specimens will obviously need more time than small ones in each change of fluid.

The drying stage is where a careful worker can improve his material. After the specimens are poured into a dish, and most of the excess fluid removed, they should be teased apart so that wings and legs are not crossed or entangled, wings straightened out if necessary, etc. In the drying process, wings of flies often cohere, and during observation at this stage one can separate the wings where necessary, and also lift up the aristae if they are flattened against the head, so as to improve the appearance and usefulness of the final mount. Some specimens automatically "pop up" into well spread position as the xylol evaporates; others benefit by a little "needling." Brief experience with this will teach one more than can be described conveniently. Hairs and bristles ordinarily spring up into normal position, except in densely hairy species whose hairs tend to mat and which need special treatment.

A second technique which is simpler and quicker involves transfer from preservative (any % alcohol) into cellosolve and later into ethyl acetate, and drying from the latter. Specimens can be left in cellosolve almost indefinitely. Ethyl acetate evaporates more quickly than xylol, and a specimen is soon ready to be mounted. This method has been satisfactory enough for large flies, and for some well-sclerotized small species, but it has not been generally successful for the small flies, especially in the  $\frac{1}{2}$  to 4 mm. range.

## COLONY FOUNDATION BY SUPPLEMENTARY REPRODUCTIVES OF EASTERN RETICULITERMES

By THOMAS E. SNYDER

In southeastern United States in the Spring before the "swarm" or colonizing flight, large numbers of supplementary reproductives are present in colonies of subterranean termites (*Reticulitermes*). These



forms with short wing pads have a pale straw-yellow or gray-brown color with compound eyes reduced in size and of a pale color. The females have lost, at the last molt, the styli or genital appendices on the ninth ventral segment of the abdomen, an adult character. Unlike the winged, they are sexually mature. They disappear just before or at the time of the flight of the winged adults.

Are these reproductives killed by the workers as unnecessary in the parent colony where reproductives are already present? Or do they migrate with or without workers through subterranean passages to form new colonies?

Rarely, small numbers of supplementary reproductives emerge or are crowded out of parent colonies at the time of the flight of the winged adults. They come out into full sunlight and run about or climb to slight elevations—as do the winged—and make slight, short jumps or flips into the air. Often they fall over backwards. Does this attempt at flight, or "pseudo-flight," of these short wing pad reproductives indicate a colonizing function or is it merely a reversion to the ancestral habit of "swarming" or flight?

In eastern United States the normal reproductive form commonly found in colonies is a single pair, male and female, developed from the winged adults. In other species of *Reticulitermes*, at Catania, Sicily and in California, the polygamous substitute reproductives are the common type. Grassi in 1896 believed that in Sicily the sexes flew at separate times.

This is an interesting study and possibly can be solved by combined field and laboratory research.

### Branch Boundaries

Members in the Dominion of Canada and the Republic of Mexico will be interested in the most recent action of the Governing Board in regard to extension of Branch Boundaries. Please note the discussion under AUTOGRAPHIA O O on the inside of the front cover and under actions of the 1956 Governing Board on page 9.

### Funds

From whence the money that runs the Society and where does it go? All of our members should study the Report of the Auditor for the fiscal year November 1, 1955—October 31, 1956. The question which introduced this filler paragraph is one which contributes, along with chronological facts, to the graying of the thinning hair of the writer of these lines. Lest we be misunderstood this is as good a place as any to state that the Executive-Secretary enjoys his work and hopes that he is making some contribution to the advancement of Entomology. Have you paid your dues?

### More Meetings

MADISON, WISCONSIN. University of Wisconsin May 14-16, 1957. Workshop on Agricultural Meteorology. Sponsored by the American Meteorological Society. G. L. Barger, Program Chairman, Agronomy Bldg., Iowa State College, Ames, Iowa.

LETHBRIDGE, ALBERTA, CANADA. October 29 to 31, 1957. The seventh annual meeting of the Entomological Society of Canada and the fifth annual meeting of the Entomological Society of Alberta.

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## BOOK REVIEWS

**THE FUTURE OF ARID LANDS**, edited by Gilbert F. White. American Association for the Advancement of Science, Washington, D. C., 1956, 464 pp., \$6.75. (Prepaid to AAAS Members, \$5.75.)

In the spring of 1955, in New Mexico, the southwestern division of the AAAS and the Arid Lands Committee of UNESCO sponsored a series of international meetings dealing primarily with the agricultural problems of arid lands. Scientists from 17 countries and many disciplines attended to assess the state of man's struggle to make productive and stable use of these areas. The 34 papers (each by a different author) presented in this meeting form the contents of this book.

As would be expected, the most important topic in this book is water, because water is the commodity in truly short supply throughout the arid areas of the world. These areas are quite extensive. The total land surface of the world is estimated at 25,000,000,000 acres; the estimated cultivated area is 2,500,000,000 acres; and the arid area is estimated at 6,400,000,000 acres.

Of great importance is the extreme variation in rainfall from year to year which characterizes individual localities in practically all arid and semi-arid lands. A striking picture of this variability for the United States is shown in a map on page 78.

Briefly the contents of the book are as follows. The first group of papers deals with a summary of the arid land situation and the place of science in increasing its usefulness. In this section the note is made that, in arid land research, advances in biology have lagged behind those of engineering. The next section of eight papers deals with the variability and predictability of water supply. In this section there is an excellent chapter on Mexico, and another chapter on geochronology which gives a reconstruction of climatic trends dating back 25,000 years. This entire section will be of great interest to entomologists interested in either ecology or Pleistocene reconstructions. The next two major sections of the book deal further with water, stressing the better use of present resources and the possibility of finding additional water sources. It is the consensus of opinion that (1) the irrigated areas of the world can be considerably enlarged by improvements in water storage, distribution, and use, and that in more areas practices can be followed which will enable irrigation to be followed almost indefinitely; and (2) it is pointed out that there is arising considerable competition for water between agricultural versus urban and industrial interests; in the long run this will limit the extent of irrigation but probably at a point considerably higher than the present areas in use.

The last section deals with the better adaptation of plants and animals to arid conditions. In the main this section deals primarily with dry farming and grazing. The entomologist can get some insight into many new problems of the future from the material in this group of eight papers. Plans are outlined for introducing grazing plants from one part of the world to another, which may add long lists of potential hosts for the endemic insects of an area, and perhaps introductions of new insects along with the new plants. In many parts of the world efforts are being made through plant breeding to develop new drought resistant or drought tolerant strains of old plants, which in turn may result in

new insect-host relationships and tolerances, and create new insect problems. Development of new strains of animals better adapted for arid land use may also bring about changes in the insect-host relationship.

This book does not give a true picture of the large and varied store of entomological knowledge which has been accumulated regarding range insects and particularly insects on irrigated crops. The only paper on insects, by B. P. Uvarov, discusses the locust and grasshopper problem in relation to the development of arid lands. Dr. Uvarov voices the stern warning that these insects as an agricultural problem are primarily a product of man-made changes in the habitat. He further points out that the locust problem is getting worse instead of better, undoubtedly due to even greater environmental changes made by man seeking to increase agricultural output.

Stressed throughout the book is the need to dovetail studies in all these areas in order to find the best over-all solution to the problems of any specific arid land areas. Changes in grazing practices, for example, will bring about changes in the plants, which will in turn effect water storage.

As you read this book there gradually unfolds a picture of progressively changing environments in this vast arid and semi-arid world of 6,400,000,000 acres, much of it in the United States. If our past experience is any criterion, new insect problems are going to arise at every turn and old problems may become worse. It seems to me that this is a real invitation for more entomologists to dig into basic problems and learn more about the role of insects in the economy of arid lands, with full assurance that this knowledge will be a necessity for attacking problems which will surely arise in the future.

The book can be summarized as a well-written exposition of many of the factors and problems in the challenge of improving agriculture on the arid lands, with much basic data for the entomologist and others who will inevitably be caught up in the meshes of that challenge.

H. H. ROSS.

**BUTTERFLIES OF THE AMERICAN TROPICS, THE GENUS ANAEA**, by William P. Comstock, 9 3/4 x 13 inches, boards, full buckram cloth, 276 + XVI pp., 30 full color plates, 19 pp., black and white drawings. New York, N. Y. The American Museum of Natural History. Pre-publication \$20.00. After publication \$25.00.

The publication of *The Genus Anaea in Butterflies of the American Tropics* is an event to which many of us have been looking forward for years with the keenest anticipation. In this book, scientists will find a wealth of information and ideas of the greatest importance to the study of animal classification and distribution, and of the New World tropical fauna in general. This we may take for granted, in view of the distinguished authorship and sponsorship of the work.

Equally noteworthy is the book itself which, because of its superb beauty of illustration and excellence of design, is destined to have the strongest appeal to bibliophiles the world over, as well as to everyone genuinely interested in natural history. I am afraid that we in the United States have lagged behind in the production of such books. This one,

happily combining great intrinsic scientific worth with illustrative artistry of the highest calibre, will do much to redeem us.

Anaë is one of the largest and most beautiful genera of the magnificent butterfly life of the New World tropics, a fauna that far outstrips anything comparable elsewhere. In the earliest beginnings of exploration, these butterflies commanded the admiration of even the most gold-mad conquistadores; and from that day to this they have been eagerly sought by collectors everywhere. Today, specimens of many of the most desirable species are nearly as hard as ever to obtain, for the Machine Age has done little to alleviate the hazards of collecting in obscure and dangerous regions that can still be reached only by native canoe; and it does nothing to solve the problem of how to get specimens of a butterfly which spends its entire life cycle in the forest canopy a hundred and fifty feet above ground.

The original material on which this monograph was largely based had to be accumulated over a period of many years. Collectors were sent into unknown regions in the hope (not always realized, by any means) that they would find specimens needed to fill a distributional gap, or to complete a taxonomic sequence; and that they would succeed in getting the specimens out to civilization in usable condition. Tens of thousands of specimens of other groups were obtained during the process, a vast back-log for further research for generations to come. Uncountable are the hours of toil and hardship, of malarial chills and fevers and, at times, of real dangers, represented by this effort.

I have been privileged to know the author for nearly forty years, and so have had ample opportunity to see his scientific thoroughness, his meticulous insistence on accuracy and, withal, his ability to see the broad picture and make sweeping generalizations when such are warranted. To him, and to the others who have devotedly aided in its gestation and birth, this monograph is indeed an enduring monument, worthy to stand with the finest books of our generation.

ALEXANDER B. KLOTS

**INSECTS AND SPIDERS** by C. P. Friedlander and D. A. Priest, 124 pages. Philosophical Library, New York, 1956. \$2.75.

Young collectors usually bring their biology teachers more insects and spiders to be identified than all other forms of animal life combined. Also they

seem to have more difficulty classifying the arthropods than any other animals they collect.

This "pocket" size book, with a handy metric scale along the edge of the front cover, is an attempt to present the classification of insects and spiders in a simple yet scientific manner.

About a hundred families of insects and seventy genera of spiders are covered and a feature of the keys is the number of line drawings used to illustrate the characteristics of the groups described.

Most amateur collectors should be able to use this book unaided, while teachers of general science and biology will find it useful in identifying the numerous specimens presented to them.

HOWARD B. OWENS

**PROFESSIONAL BIOLOGY**, by Ross H. Arnett, Jr., Head, Department of Biology, St. John Fisher College, Rochester, New York. 19 pp., mimeographed, 1956. Also **AVOCATIONAL BIOLOGY**, by the same author. 6 pp., dittoed, 1955. General treatises of particular value to counselors and interested students.

**4-H CLUB ENTOMOLOGY LEADER'S MANUAL**. Agricultural Handbook No. 106, U. S. Department of Agriculture. Prepared by a Committee of Federal and State Extension Workers. 16 pp., 1956.

The content of this excellent booklet is indicated by the title. Copies available through Extension Entomologists or Extension Departments in each state.

**HANDBOOK OF THE INSECT WORLD**, prepared by Hercules Powder Co., 60 pp., 1956.

This booklet presents in a single volume, concise descriptions, drawings and approximate sizes of some of the most common insects. Although an insect primer in one respect, it is sufficiently complete to be used as a guide by farmers, gardeners, students, and 4-H and Future Farmers of America members and leaders, amateur collectors and many others interested in insects. Available through Extension Entomologists or Extension Departments in each state.

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